

# Royal C276-10 & C276-30

Gas Tungsten Arc Welding  
(GTAW) TIG Alloy

Gas Metal Arc Welding  
(GMAW) MIG Wire

Nickel-Chrome-Moly Alloy



"The Royal Line"

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## Premium Nickel-Chromium-Molybdenum TIG & MIG Alloy

### Typical Applications

**Royal C276-10** (TIG) and **Royal C276-30** (MIG) are used primarily to weld Hastelloy C-276 and other nickel-chromium-molybdenum alloys. These alloys are found in many pollution control, chemical processing, pulp and paper production, and waste treatment applications. **Royal C276-10** and **Royal C276-30** display excellent corrosion resistance in many media and are especially resistant to pitting and crevice corrosion, which makes them ideal for the cladding of many different types of steels. **Royal C276-10** and **Royal C276-30** are also useful for various dissimilar joints involving nickel alloys, stainless steels and low alloy steels.

### Specifications

AWS A5.14/A5.14M	Tensile Strength (typical)	102,000 psi
ER NiCrMo-4	Yield Strength (typical)	81,000 psi
	Elongation in 2" (typical)	35.0%

### 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. Welding can be done in all positions.

#### 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	30 – 70	10 – 15
1/16 to 1/8	1/16 to 3/32	1/16 to 3/32	10 – 17	50 – 125	20
1/8 to ¼	3/32 to 1/8	3/32 to 1/8	10 – 18	70 – 160	20
¼ and up	3/32 to 1/8	3/32 to 1/8	10 – 18	90 – 210	20 – 30

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** (normally used for surfacing applications where limited dilution of base metal into the weld pool is desired)

DC reverse polarity (DCEP) - Maintain a medium arc length - Use [90% Helium - 7½% Argon - 2½% CO<sub>2</sub>] 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 – 30
1/8 – 3/4	.045	75 – 165	19 – 22	170 – 230	20 – 30

**Spray Transfer Welding** (normally used for groove and fillet welds)

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

Joint Thickness (inches)	Wire Diameter (inches)	Welding Current (amperage)	Arc Voltage (volts)	Wire Feed Speed (ipm)	Gas Flow (cfh)
1/8 – 5/8	.035	150 – 250	26 – 32	400 – 520	30 – 35
3/8 – ¾	.045	190 – 260	28 – 33	250 – 350	30 – 35
½ and up	1/16	200 – 280	29 – 34	150 – 300	35 – 40

### Sizes and Part Numbers

TIG Diameter	Part Numbers	
	1# Package	5# Package
1/16 x 36"	RTC276/TL-BP	RTC276/TL
3/32 x 36"	RTC276/TN-BP	RTC276/TN
1/8 x 36"	RTC276/TO-BP	RTC276/TO

MIG Diameter	Part Numbers		
	2 lb (4") Spools	8" Spools	33lb Spools
.035	RSC276/1F	RSC276/2F	RSC276/3F
.045	RSC276/1G	RSC276/2G	RSC276/3G
1/16	RSC276/1L	RSC276/2L	RSC276/3L



**!!!! 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.**

