

Zirconium Zr 702

CATEGORY GMAW-GTAW Solid wires

TYPE Filler metal for Gas Tungsten Arc welding of Zirconium and Zirconium alloys

APPLICATIONS Zirconium Zr 702 is used widely in many industries for process equipment. Major applications include pressure vessels, heat exchangers, piping, tanks, shafts, mixers, and other mechanical equipment; valves; pumps; spargers; trays; and tower packing

PROPERTIES Zirconium often is chosen for its resistance to corrosion from most organic and inorganic acids, salt solutions, strong alkalis, and some molten salts. It is especially suitable in many sulfuric, nitric, hydrochloric, and acetic acid applications. **Backup Shielding.** Backup shielding protects the molten root of the weld on the first pass and blankets the solidified weld during subsequent passes until the root surface temperature stays below 600 degrees F. Backup shielding also should be used on the back surface of sheet or plate less than 1/4 in. thick to prevent oxidation. **Gas Requirements.** Welding-grade argon (99.999 percent purity) usually is chosen for primary, secondary, and backup shielding, as well as for purging. Argon provides excellent arc stability, and because it is heavier than air, it blankets the weld and provides protection. Helium or argon/helium mixtures sometimes are used for torch shielding if added penetration is desired. Argon and helium mixtures also are occasionally employed for backup shielding and purging, in which helium's low density can effectively purge blind spaces. **Gas Purity.** Argon usually is purchased to 99.998 percent purity with a guarantee of less than 5 parts per million (PPM) oxygen, moisture, or total hydrocarbons. The dew point at the gas supply should not be more than -60 degrees F (-51 degrees C).

CLASSIFICATION AWS A5.24: ER Zr 2
UNS R60702

SUITABLE FOR Welding Zirconium alloys in general but also for successfully weld zirconium to titanium, tantalum, niobium (columbium) and vanadium however the weld metal will be stringer and less ductile than the base metals.

WELDING POSITIONS:



FILER METAL WEIGHT %

C	O	H	N	Ha	Zr + Ha	Cr + Fe
<0.03	0.11-0.15	<0.005	<0.015	<4.50	>99.0	<0.20

MECHANICAL PROPERTIES

Heat Treatment	R _{p0,2} (psi)	R _m (psi)	A (2")	Impact Energy (J) ISO-V			Hardness HRC / HV
				-20°C	-40°C	-60°C	
AW	30,000	55,000	16				

AW; as welded

WELDING PARAMETERS / PACKING

D (mm)	Welding Parameters		Current (A)	Packing kg / tube
	Length (mm)			
1,6	1000		80-150	5
2.0	1000		100-175	5
2.4	1000		130-200	5
3.2	1000		180-225	5

REDRYING TEMPERATURE Not required

SPOOLED WIRE This alloy is also available as spooled wire on D-300 spools ranging from 0,8 till 1,6 mm.