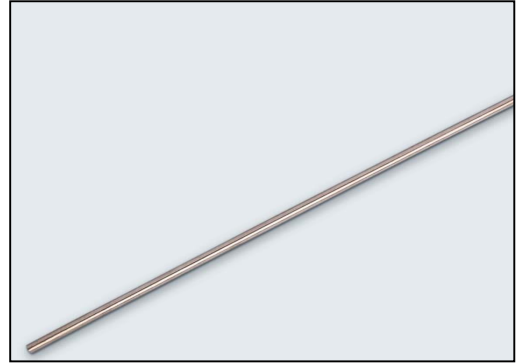


MAGNA 28 SuperTIG Al-Bronze Alloy

PRODUCT DATA SHEET

MAGNA 28 SuperTIG Al-Bronze Alloy is a superior non-rusting TIG filler metal for rebuilding or overlaying metal against wear and corrosion. The weld deposit of MAGNA 28 offers high mechanical properties, tensile strength, yield strength and hardness. MAGNA 28 can also be used for joining dissimilar metal combinations, such as copper to steel or bronze to steel.



MAGNA 28 SuperTIG Al-Bronze Alloy

SPECIAL FEATURES

- High tensile strength up to 60,000 psi
- The unique metallurgical characteristics of MAGNA 28 enable it to readily join dissimilar metals using TIG process
- High resistance to oxidation at high temperatures and excellent protection against sulphuric acid & sulphur dioxide
- Superior resistance against stress corrosion cracking or corrosion fatigue
- Meeting or exceeding major industrial specifications



Ship propeller

BENEFITS

- Outstanding anti-wear and anti-corrosion properties
- Excellent for re-building and overlaying corrosion resistant surfaces
- Wide range of applications in marine maintenance environment with superior resistance to saltwater corrosion



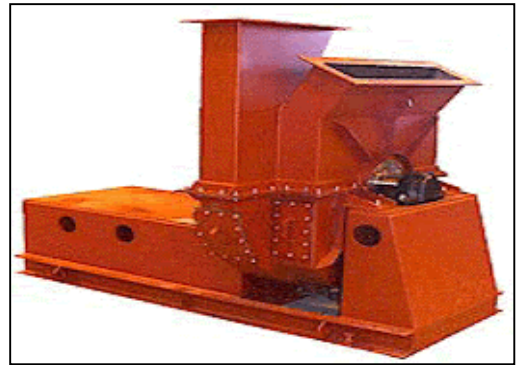
Turbine runner

RECOMMENDED APPLICATIONS

- Joining aluminum bronze of similar composition: silicon and manganese bronze, some copper-nickel alloys, ferrous metals and dissimilar metals
- Marine maintenance and repair welding of ship propellers, pump housings, rigging jacks, piston heads, bearings and many overlay or surfacing applications.
- Widely used for pump shafts and for valve spindles – situations where pitting corrosion in crevices makes stainless steels unsuitable
- Ideal for inert gas fans in oil tankers, since they operate under highly stressed conditions in a variable but very corrosive atmosphere containing salt-laden water vapour, sulphurous gases and carbon



Pump housing



Marine inert gas fan

MAGNA 28 SuperTIG Al-Bronze Alloy provides versatile and outstanding applications on the following equipment and metals:

Aluminum bronze	Bearings	Tin plate mill rolls
Silicon bronze	Bushings	Impellers
Manganese bronze	Pump housings	Valve seats
Steel to bronze	Condenser boxes	Gears
Cast iron	Hydraulic pistons	Mixer arms
Malleable iron	Brake drums	Press rams
Cast iron to steel	Tractor gear housings	Ship propellers
Cast iron to bronze	Idler pulleys	Lance heads
Cupro-nickel	Pickling hooks	Turbine runners
Tool steel	Paper mill rolls	Adjusting spindles
Copper to steel	Motor bases	

PRODUCT DATA

Melting Point	1913°F
Density, at 68°F	0.272 lb/in ³
Electrical Conductivity, at 68°F	13 %IACS
Thermal Conductivity, at 68°F	37.0 BTU · ft/(hr · ft ² · °F)
Specific Gravity	7.53
Specific Heat Capacity, at 68°F	0.09 BTU/lb/°F
Tensile Strength	Up to 60,000 psi
Yield Strength	43,000 psi
Elongation, in 2 in.	23%
Brinell Hardness	130 – 150



Paper roll mill

Product dimensions:

Diameter	2.4 mm
Length	915 mm

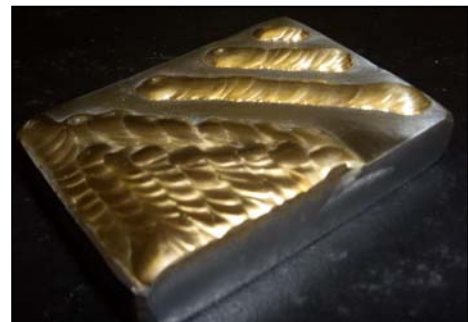
Welding parameters:

Amps (DC)	145 – 205
Amps (AC)	145 – 195
Gas Cup / Nozzle dia.	10 – 12 mm
Argon / lpm.	12 - 15

SAMPLE WELD BY TIG



Front view of sample weld by MAGNA 28 on stainless steel



A diagonal view of the same sample weld on stainless steel

USER TIPS ON WELDING PROPELLERS

Subject to constant corrosion, worn out marine propellers require very high quality and durable repair to sustain their efficiency. The quality of a propeller weld job directly impact on the operation, energy efficiency and overall running costs of a marine vehicle. MAGNA 28 SuperTIG Al-Bronze Alloy particularly suits the needs for dockyards, boating & propeller maintenance industries. Please refer to the following specific steps to achieve a high quality weld.

1. Get ready with equipment – TIG welder: AC/DC hi frequency with foot control.
2. Choose a high quality aluminum bronze filler metal, such as MAGNA 28 SuperTIG Al-Bronze Alloy.
3. Common propellers include: Bronze propellers / Nibral propellers / Stainless Steel propellers.
4. Hold the prop at the desired angle.
5. The correct copper template for the propeller blade is clamped to the pushing face of the propeller.
6. Weld directly against the copper template.
7. The weld will follow the correct pitch, rake and blade configuration.
8. When finished welding the damaged areas, turn the propeller over and weld over any voids on the pushing face.
9. Keep the welds approximately 1/8" thicker than the prop itself, allowing the impurities in the propeller casting to float to the surface of the weld.
10. After grinding the weld down there should be little or no porosity along the weld line.
11. Copper and its alloys require a relatively high heat input with shortened welding time. Higher preheat temperatures and faster welding rates than for steel are necessary.

PRECAUTION

For complete safety and handling information, please refer to the appropriate Material Safety Data Sheets prior to using this product.

Warranty: Magna Industrial Co. Limited will replace any material found to be defective. Because the storage, handling and application of this material are beyond our control we can accept no liability for the results obtained.

Disclaimer: All information on this data sheet is based on laboratory testing and is not intended for design purposes. Magna Industrial Co. Limited makes no representations or warranties of any kind concerning this data.