DAIKOWT MG 92-8

GTAW

MAGNESIUM ALLOYS
Alloy AZ61A

DESCRIPTION

Rod for welding magnesium and its alloys

Solid rod for welding magnesium and its alloys, specifically for welding and repairing components in the automotive sector, particularly for motorcycle engine blocks

SPECIFICATIONS

AWS A5.19	ER AZ61A	**Positions**	PA, PB, PC, PD, PE, PF
Current	AC	**Packaging Type**	5kg carton tube

CHEM. COMP. %	DEFAULT
Mn	0.3
Al	6.93
Si	0.02
Fe	0.002
Zn	0.96

WELDING PARAMETERS	2.4 mm	3.2 mm
Ampere	60A - 70A	110A - 120A
Voltage	-	-
Packaging	Ø 1,6÷3,2mm	Ø 1,6÷3,2mm
Packaging Type	5kg carton tube	5kg carton tube

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DESCRIPTION

APPLICATION

The AZ61A magnesium alloy is mainly used in lightweight structural components for aerospace, automotive, and high-speed industrial machinery applications, as well as in brackets, frames, supports, and housings where weight reduction is critical. These applications are enabled by the alloy's relevant properties, including low density (approximately 1.80 g/cm^3, significantly lighter than aluminum and steel), a high strength-to-weight ratio, good machinability and formability (extrusion and forging), and acceptable weldability, making it suitable for medium-load structural components.

ALLOY TYPE

General-purpose magnesium alloy containing 6.5% Al, 1% Zn, and 0.15% Mn.

MICROSTRUCTURE

The microstructure obtained through sub-rapid solidification consists mainly of a supersaturated **α**-Mg solid solution.

MATERIALS

AZ10A, AZ31B, AZ61A, AZ80A, ZK21A

WELDING & PWHT

The AZ61A alloy offers excellent weldability characteristics. It is suitable for welding processes such as TIG (Tungsten Inert Gas) and MIG (Metal Inert Gas), enabling the production of sound and durable joints with a reduced risk of cracking. Argon, helium, or mixtures of these gases are used for shielding. Alternating current (AC) is preferred due to the combination of effective arc cleaning action and good joint penetration, although direct current (DC) is also used. Direct current with electrode positive (DC+) provides excellent cleaning action but is limited to thin base materials. Direct current with electrode negative (DC–) is sometimes used in mechanized welding with helium-based shielding gas to achieve deep joint penetration. Cleanliness of magnesium alloys is essential to obtain sound welded joints of acceptable quality; therefore, the surfaces and edges to be joined must be thoroughly cleaned of oil, grease, dirt, or oxides using chemical cleaners. After degreasing, mechanical brushing with a stainless steel brush is considered good practice.