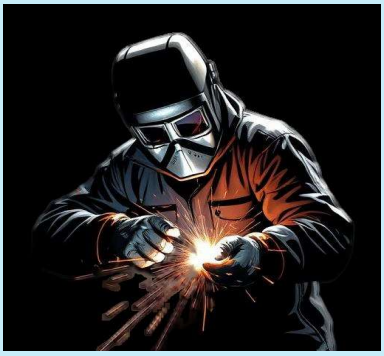
Shri Balaji Alloys Corporation India



1. Introduction

The mining sector involves the extraction of minerals and ores, which requires heavy machinery and equipment operating under extreme conditions. High levels of wear, impact, abrasion, and corrosion are common, making maintenance and repair critical for operational efficiency and safety. Welding electrodes are vital in maintaining and repairing mining equipment, extending the life of components, and reducing downtime.

2. Applications of Welding Electrodes in Mining

Application	Details	Examples of Electrodes
Crusher Repairs	Hardfacing and rebuilding crusher jaws, hammers, and mantles to resist abrasion and impact.	Hardfacing electrodes (e.g., chromium-carbide)
Conveyor Belt Systems	Repairing structural components and rollers subjected to continuous wear.	Low-hydrogen electrodes (e.g., E7018)
Excavator Bucket Repair	Rebuilding worn-out edges, teeth, and surfaces of buckets exposed to heavy impact and abrasion.	Hardfacing electrodes
Drill Bit Maintenance	Hardfacing to improve wear resistance of drilling components.	Hardfacing electrodes
Haul Truck Repairs	Welding and repairing truck frames, axles, and bodies exposed to dynamic loads.	Low-hydrogen and general-purpose electrodes
Piping and Pump Systems	Welding pipes and pump casings subjected to corrosion and abrasive slurries.	Stainless steel and nickel-based electrodes
Structural Fabrication	Welding support structures, platforms, and other infrastructure.	General-purpose electrodes (e.g., E6013)
Gear and Shaft Rebuilding	Rebuilding worn gears and shafts to restore operational efficiency.	Nickel-based and low-hydrogen electrodes

3. .. Usage of *"MAXIDURA"* in various APPLICATIONS of MINING SECTOR

EARTH MOVING &MINING SECTOR			
COMPONENTS	BASE METALS	WEAR FACTORS	RECOMMENDED ELECTRODE
BUCKET TOOTH	MN.STEEL	ABRASION/IMP ACT	MaxiDura108+103
BUCKET LIP	MN.STEEL	ABRASION/IMPACT	MaxiDura108+103
TRACK SHOES	MN.STEEL	FRICTION/ABRA SION	MaxiDura108/133
SPROCKETS	STEEL	FRICTION/ABRASION/IMP	MaxiDura105
RACK PINION	STEEL	FRICTION	MaxiDura101+100
RACK TEETH	STEEL	FRICTION	MaxiDura100
BUCKET BODY	MN.STEEL	ABRASION/IMP ACT	MaxiDura108
LATCH BAR	MN.STEEL	FRICTION/ABRA SION	MaxiDura108/133

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HEADOFFICE:-HD68A, NEAR ADARSH CHOWK, KABIR NAGAR, RAIPUR (CHHATISGARH), 492001.

PHONE/FAX:-07714905001

OUR-BRANCES:-INDORE&HYDERABAD.

Shri Balaji Alloys Corporation India
MaxiDura Welding Electrodes

Email:-shribalajialloyscorporation@gmail.com **Web:-www.sbacindia.com**

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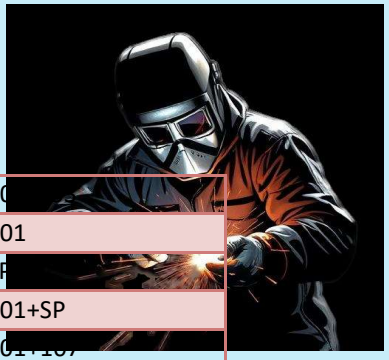

LATCH KEEPER	MN.STEEL	FRICTION/ABRA SION	MaxiDura10
SLIDES	STEEL	FRICTION	MaxiDura101
INTERMEDIATE HOISTSHAFT	STEEL	FRICTION	MaxiDuraSP
BOOM STICK	STEEL	CRACK	MaxiDura101+SP
SWING DRUM	STEEL	CRACK	MaxiDura101+107
TAKE UP AXEL SHAFT	STEEL	FRICTION	MaxiDura101
SHAFT FOR RACKPINION	STEEL	FRICTION	MaxiDuraSP
BEVEL GEAR	STEEL	FRICTION	MaxiDuraSP
IDLERS	STEEL	FRICTION	MaxiDura100
CHASSIS	STEEL	CRACK	MaxiDura101+107

DRILL MASTER			
MAIN BASE FRAME	STEEL	CRACKS	MaxiDura101+107
SUPPORT LEVER	STEEL	CRACKS	MaxiDuraSP
SPOOL VALVE HANDER	STEEL	CRACKS	MaxiDura101
DRP-2 ROTARY HEAD LOATING SPINDLS	STEEL	FRICTION	MaxiDuraSP
SPINDLE COMPLETE	STEEL	FRICTION	MaxiDuraSP
HOSTING WINCH MOTOR	STEEL	CRACKS	MaxiDura101
BREAK LEVER	STEEL	FRICTION	MaxiDura101
TOWER CYLINDER BUSHING BRACKET	STEEL	CRACKS	MaxiDura101
DUST COLLECTOR BLOWER	CAST IRON	ABRAION/CRACK S	MaxiDura115
ROD CHANGER ASSEMBLY	STEEL	CRACKS	MaxiDuraSP
DRILL ROD SUPPORT PLATE GUIDES	STEEL	FRICTION	MaxiDura101
TOWER SUPPORTBRACKET	STEEL	CRACKS	MaxiDura101

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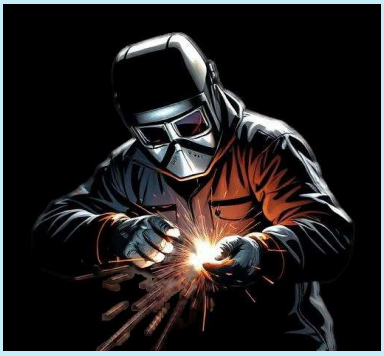

HAULPAK DUMPER			
PIVOT PIN	ALLOY STEEL	FRICTION	MaxiDuraSP
SUSPENSION EYE	ALLOY STEEL	CRACKS	MaxiDura107+SP
PIVOT PINION CARIER	ALLOY STEEL	FRICTION	MaxiDuraSP

COAL DRILL			
TRACK FRAME	STEEL	CRACKS	MaxiDura107
CHESSIS	STEEL	CRACKS	MaxiDura107
TOWER	STEEL	CRACKS	MaxiDuraSP
TOW HAER BRCKET D14 MMER	STEEL	CRACKS	MaxiDura101
CHUCK D 14 HAMMER	STEEL	FRICTION/ABRA SION	MaxiDura101
BACK HEAD	STEEL	FRICTION	MaxiDura101
CLEAVES (DUMP SHAFT)	STEEL	CARACKS	MaxiDuraSP

DOZERS			
CARRIER ROLLERS	STEEL	FRICTION/ABRA SION	MaxiDura105
IDLERS	STEEL	FRICTION/ABRA SION	MaxiDura105
SPROCKET	STEEL	FRICTION/ABRASION	MaxiDura105
"C" FRAME	STEEL	FRICTION/ABRA SION	MaxiDura105
TRACK ROLLER	STEEL	FRICTION/ABRASION	MaxiDura105
"C" FRAME BRACKET	STEEL	CRACKS	MaxiDura101+107
BASE ARMS	STEEL	ABRASION/CRAC KS	MaxiDura101
BLADE ASSEMBLY	MN.STEEL	IMPACT/ABRASION	MaxiDura108/133
GEAR SHIFTING LEVER	STEEL	FRICTION	MaxiDuraSP
TRACK FARM	STEEL	CRACKS	MaxiDura101
IDLER SHAFT	STEEL	FRICTION	MaxiDura101
TRACK FRAME LEVER	STEEL	CRACK	MaxiDuraSP

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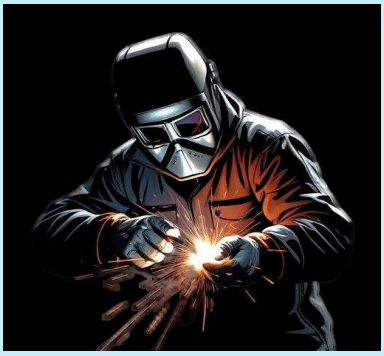

HYPOID GEAR	STEEL	IMPACT/CHIPPED OFF	MaxiDuraSP
CROWN WHEEL	STEEL	IMPACTED/CHIFFED /TEETH	MaxiDuraSP
CROWN WHEEL	BRASS	CHIPPED/TEETH/FRI CTION	MaxiDura130
REAR AXLE HOUSING	ALLOY STEEL	DAMAGED THREADS	MaxiDuraSP
LEAF SPRING	SPRINGSTEEL	IMPACT/BROKEN	MaxiDuraSP
SLACK ADJUSTER	CAST IRON	HEAT	MaxiDura115

BOTTOM DUMPER			
GOOSE NECK	STEEL	CRACK	MaxiDura101
GOUSE NECKSIDE CORNER BOX	STEEL	CRACK	MaxiDuraSP
DOOR OPENING CYLINDER	STEEL	CRACK	MaxiDuraSP
EXHAUST MAIN DELIVERY PIPE	STEEL	CRACK	MaxiDura115
WATER PUMP BRACKER	STEEL	CRACK	MaxiDura101
CHASIS	STEEL	CRACK	MaxiDura101

MOTOR GIRDER			
BLADE LIFTING ARM	STEEL	CRACK	MaxiDura101
BRAKE DRUM	CAST IRON	FRICTION	MaxiDura115
LIFTING HOUSING MOUNTING BRACKET	STEEL	CRACK	MaxiDura101
CRANES			
AXLE HOUSING	STEEL	FRICTION	MaxiDura101
HYDRAULIC PIPE	STEEL	LEAKAGE	MaxiDura101
ROOMS	STEEL	CRACK	MaxiDuraSP

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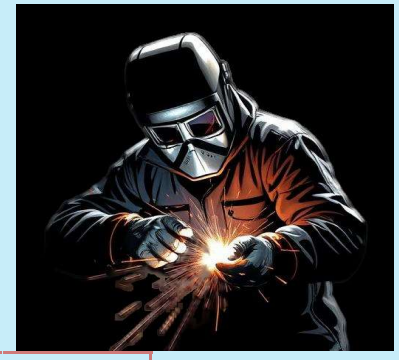

BODY	STEEL	CRACK	MaxiDuraSP
	LOADERS		
BUCKET BODY	STEEL	ABRASION	MaxiDura106
BUCKET BRACKET	STEEL	SHOCK LOAD CRACKS	MaxiDura101
CUTTING EDGES	MN.STEEL	IMPACT/ABRASION	MaxiDura103
BRAKE HEAD COVER	MILDSTEEL	CRACK	MaxiDura101
BUCKET TOOTH	MN.STEEL	ABRASION/IMPACT	MaxiDura108/133
HOIST ARMS	STEEL	CRACK	MaxiDura101

4. Key Considerations for Electrode Selection

Consideration	Details
Material Compatibility	Ensure the electrode matches the base material for optimal weld strength and durability.
Operating Conditions	Take into account abrasion, impact, corrosion, and temperature during electrode selection.
Welding Position	Choose electrodes suited for the required welding position (e.g., flat, vertical, overhead).
Preheating and Post-Weld Treatment	Preheating reduces thermal stress, while post-weld treatment enhances weld integrity.
Manufacturer Guidelines	Follow recommendations for amperage, polarity, and usage to achieve the best performance.

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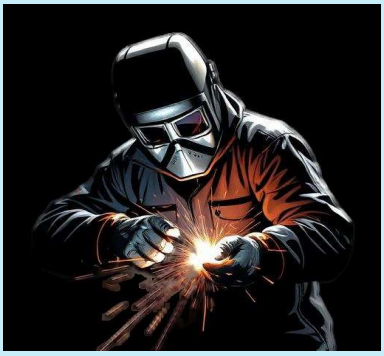

5. Common Challenges and Solutions

Challenge	Details	Solution
Abrasion Resistance	Components like crushers and buckets face extreme wear from abrasive materials.	Use hardfacing electrodes to deposit wear-resistant layers.
Impact Damage	Excavator buckets and truck frames are subject to heavy impacts.	Apply high-toughness electrodes for impact resistance.
Corrosion	Piping systems and pumps are exposed to corrosive slurries and environments.	Use stainless steel electrodes for protection.
Weld Cracking	Caused by improper electrode selection or lack of preheating.	Use low-hydrogen electrodes and preheat as necessary.
Heat Distortion	Excessive heat input can warp thin components.	Use controlled heat input and appropriate techniques.

6. Conclusion

Welding electrodes are indispensable in the mining sector, ensuring reliable performance and longevity of critical equipment. The selection of appropriate electrodes based on application-specific requirements can significantly reduce downtime and maintenance costs while enhancing operational safety. Advances in welding technology and materials continue to support the challenging needs of the mining industry.

7. Recommendations

- Train welders on the proper selection and application of electrodes for mining equipment.
- Maintain an inventory of commonly used electrodes to enable quick repairs during breakdowns.
- Implement a regular maintenance schedule to address wear and tear proactively.
- Collaborate with welding consumable manufacturers to explore solutions for unique challenges.
- Ensure compliance with industry standards and best practices to maintain safety and efficiency.

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