AZZUBI METAL CASTING – JORDAN (HKJ)

Introduction

Azzubi Metal Casting is one of the leading casting foundries in Jordan, with a 10,000 m^2 facility, comprising multiple furnaces and a machining department next to Muwaqar Industrial Area, as well as a showroom at a strategic location in the capital Amman.

With 27 years of extensive experience in the metal casting arena, Azzubi Metal Casting has been supplying the local, regional and international markets with high-quality and high-precision casted parts tailored to meet the specific requirements of each client.

Our competitive advantages include our: ability to produce any high-precision and sophisticated spare part for almost any type of machinery at high-quality, similar if not better than the original part; broad knowledge in alloys and heat and wear resistant materials; much shorter delivery time; specialized in medium-to-high volume production; competitive pricing; and unmatched customer service.

Mission: Provide our clients with a one-stop solution for high-quality customized metal parts tailored specifically to their unique requests.

Vision: Become the region's leading metal casting firm in the next decade by utilizing our dedicated leadership, tech-savvy workforce, world-renowned technological knowhow forging new win-win partnerships.

One-Stop Solution

Reverse Engineering

What makes us unique is our one-stop shop solution. Our highly qualified engineering team is able to apply reverse-engineering to any spare part demanded by our clients, supplying them with a more durable product containing the right alloys selection based on the nature of each client's work.

Modelling & Design

Our pattern workshop is able to apply reverse drawings technics on high precision equipment spare parts. Reverse drawings can be applied on consumed parts, fractured parts and machine assembly. We can also provide recommendations on modifying parts to increase its durability and efficiency.

Casting & Machining

Our casting utilizes sand as the mould material to form metal parts. This enables us to achieve the most desirable properties and can handle complex shapes. Our up-to date machining shop ensures high precision capabilities and dimensional stability with exceptional surface finishing.

Quality

Our products comply to international standards
DIN, German Institute for Standardization.
ASTMI, American Society for Testing & Materials.
EN, European Standards.
BS EN, British European Standards.
JIS, Japanese Industrial Standards.

Delivery Time

With our experience and know-how we are able to deliver requested parts with extremely short delivery time, insuring our clients work is not interrupted.

Life time warranty

All our products come with a life time warranty from any fracture or damage caused from manufactured materials

AZZU'BI METAL CASTING – SECTORS

We have delivered products to our clients from the private and public sector at over 10 different countries in 3 continents.

AZZU'BI – JAW CRUSHERS

JAW CRUSHER TERMINOLOGY

Open Side Setting (OSS)
Maximum distance between jaw plates for a given setting (the distance when the jaw is at rest).

Close side setting (CSS)
Minimum distance between jaw plates derived from the OSS and the stroke.

Drive Side
Drive side of Crusher. With grooved pulley for drive belts.

Non Drive Side
Opposite side of the crusher from the drive side.

Flywheel
Large wheels used as part of the crusher drive and to store inertia.

Nip Angle
Angle between jaw plates which is indicative of the crushers ability to crush and draw rock.

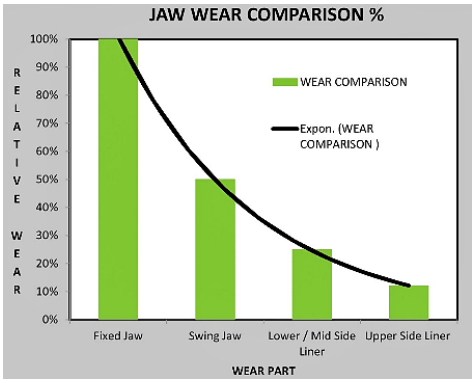
Jaw Plates
Replaceable liner plates available with different profiles for certain applications. They help achieve required output grading whilst protecting jaw stocks from wear.

Fixed Jaw
Replaceable liner plate attached to the fixed frame.

Swing Jaw
Replaceable liner plate attached to the jaw stock.

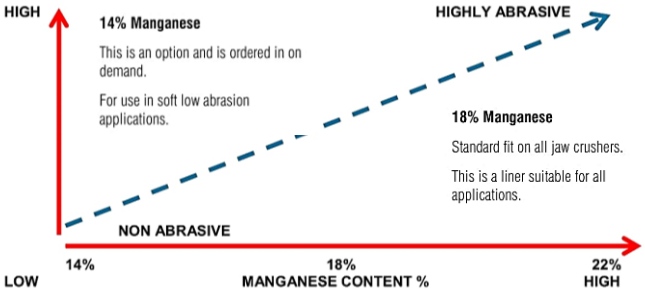
Cheek Plates
Wear plates used to protect the crusher frame side plates.

Wedges
The design of some jaw crushers requires wedges, to ensure that the jaw plates are held firmly in position. These are also a wear part that can be replaced when worn down.



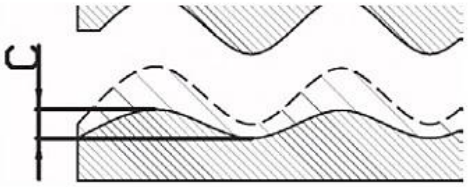
FEEDING A JAW CRUSHER

All crushers work best with a uniform feed gradation and a wide range of material size. Fines do not need to be crushed and so it is normal to use a Vibrating Grizzly Feeder (VGF) so that material smaller than the grizzly aperture bypasses the crushing chamber. This reduces wear on the jaw liners and can improve overall plant performance. However it is good practice not to have grizzly aperture any larger than jaw CSS. This is to ensure there are some smaller materials to help the jaw grip and crush the larger rocks.



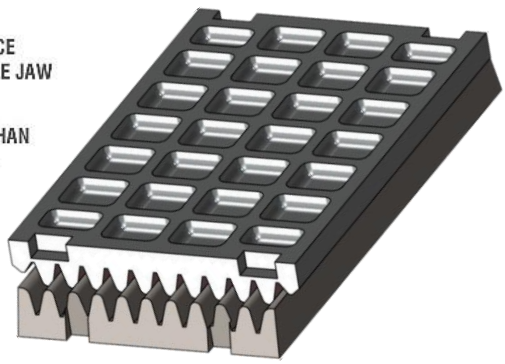
MAXIMUM ACCEPTABLE WEAR

A jaw should not run any longer once the tooth profile has reduced to below 90% of its profile height (if the face is smooth this will result in high loadings) in the crushing zone.

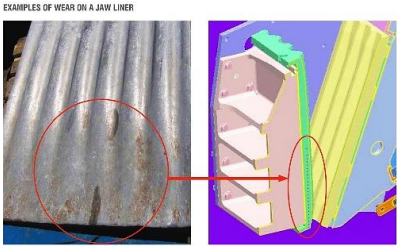


IN ALL CASES A MINIMUM OF 10MM VARIANCE BETWEEN THE PEAK AND VALLEY OF A SINGLE JAW FACE MUST BE PRESENT.

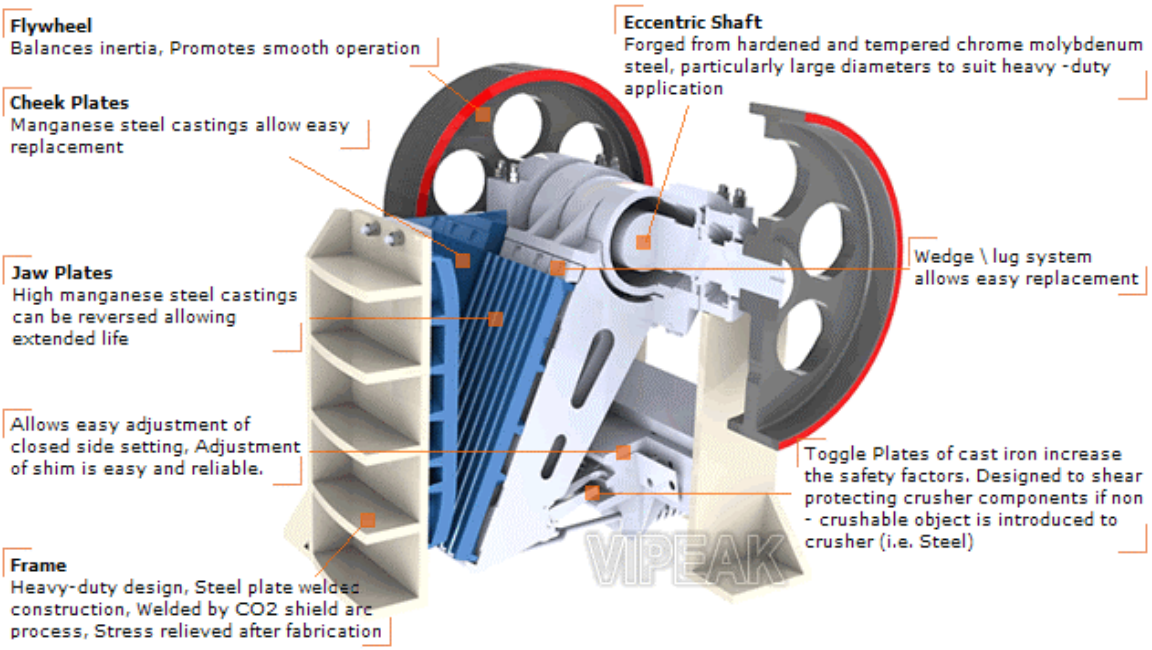
IF ANY OF THE JAW FACE PRESENTS LESS THAN 10MM, THE JAW LINER MUST BE REPLACED.

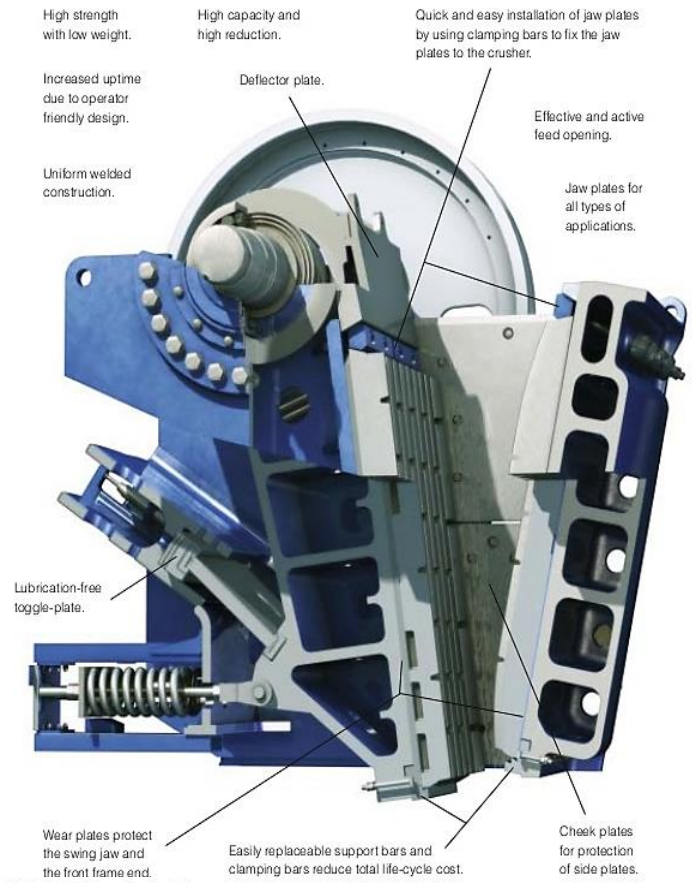


EXAMPLES OF WEAR ON A JAW LINER

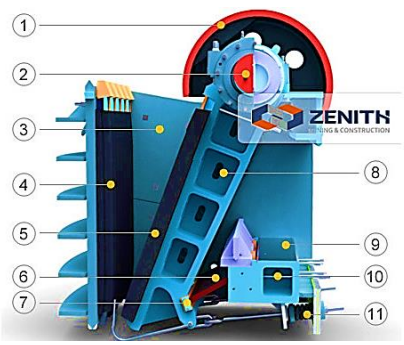


AZZU'BI – JAW CRUSHERS





1. Flywheel
2. Eccentric Shaft
3. Side Liner
4. Fixed Jaw Plate
5. Movable Jaw Plate
6. Toggle Plate
7. Toggle Plate Shim
8. Movable jaw
9. Adjusting Set
10. Tension Rod
11. Spring

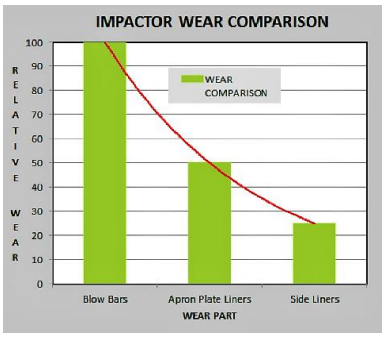


Spare parts available

ZENITH
SBM MINERAL PROCESSING
A Member of MFL Group
HAZEMAG
Trimax minerals

SVEDALA 1208

AZZU'BI – IMPACT CRUSHERS



IMPACT CRUSHER TERMINOLOGY

Rotor
This is the main part of the HSI crusher. It holds the blow bars and rotates at a high speed, being driven by a pulley connected directly to the engine.

Blow bar / Hammers
Wear parts inserted into the rotor which impact the rock to cause breakage. These can be replaced when they are worn down.

There are two different options:
- 4 high blow bars
- 2 high and 2 low blow bars

Some older design crushers had a 3 bar rotor.

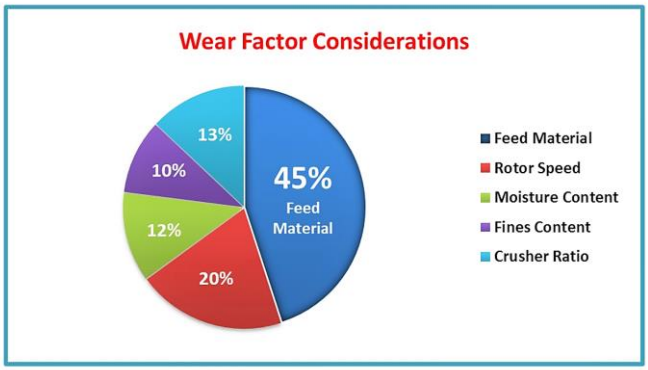
Aprons
Primary and Secondary aprons are used to reduce rock down to the required product size.

Apron Settings
This is the measurement the aprons are set at to achieve the product gradings. There are general rules of what the settings should be.

Apron Liners
Liners that are generally fitted to the end of aprons (which are replaceable wear parts) to ensure the apron settings can be maintained.

Side Liners
Sometimes called frame liners, these are used on the inside of the impactor body to protect it from wear.

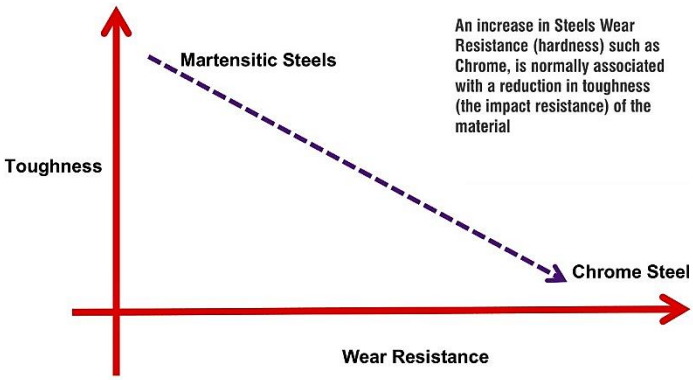
INFLUENCING FACTORS ON BLOW BAR WEAR



Feed Material is the most important factor for selecting the correct blow bar.

To increase the life of blow bars the following guidelines should be adhered to:
- Maintain and clean chamber daily
- Inspect blow bars for premature wear or damage
- Select correct blow bars depending on application
- Adjust machine parameters

METALLURGY OPTIONS - BLOW BARS

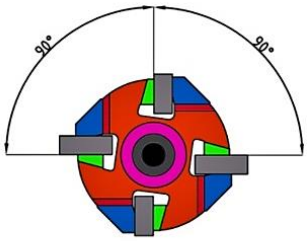


An increase in Steels Wear Resistance (hardness) such as Chrome, is normally associated with a reduction in toughness (the impact resistance) of the material

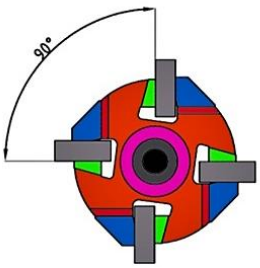
ROTOR CONFIGURATIONS

2 Bar is Standard fit from the Factory
4 Bar is an option – Only used when feed size small

X2Short X2 Long Blow Bars
- Better penetration
- Higher Tonnage for a given speed
- Reduced blow bar wear
- Less fines produced
- Suitable for more applications
- Time between blow bars is doubled improving penetration on material



X4 Long Blow Bars
- Reduce oversize
- More fines produced
- Good for secondary applications where shape and size outweigh throughput
- High reduction on softer feed material



AZZU'BI – IMPACT CRUSHERS

EXCESSIVE WEAR

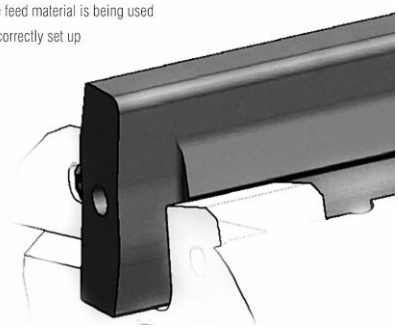
- In the case of excessive wear on the blow bars, there can be detrimental effects on the rotor.
- If the bar is not turned before the recommended specified limit , then once changed the bar will not be in a stable position when working.
- This may lead to the bar becoming loose and falling out of the rotor.
- The figure below shows how a blow bar has been worn excessively past its recommended limit.

- The result of this negligence has led to the blow bar not being able to be turned
- More severely is the fact that the machine will now need a new rotor

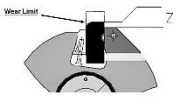
IDEAL WEAR PATTERN

- A gentle radius on the blow bar shows that the feed material is the correct size
- It shows that the rotor penetration and rotor speed are correct
- The correct blow bar for the feed material is being used
- The machine parameter is correctly set up

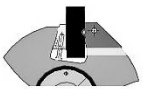
The result of all this?
The blow bar life is optimized

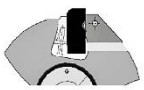


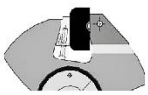
WEAR LIMITS



Blow bar needs changed or rotated when the wear limit "Z" is reached otherwise continuous damage will occur to rotor.
Always refer to Machine Specific Operational manual for Correct Wear Limits


New blow bar, full wear life


Half worn, turn needed


Fully worn, replacement required

EXCESSIVE WEAR AT CENTRE OF BLOW BAR

Problem
The blow bar is wearing towards the centre

Causes & Issues
- A trickle feed gives uneven wear
- Reduces the life of the blow bar

Solution
- Increase feed to crusher (E.g. A larger excavator is required to feed machine)
- Increase the speed on the feeder

EXCESSIVE WEAR AT BOTH ENDS

Problem
Wear on the sides of the blow bar

Causes & Issues
- High percentage of fines in the feed or overfeed causing fines to be pushed to outside
- Crusher chamber contaminated with caked material causing friction wear

Solution
- Reduce speed of feeder so wear becomes even across the surface of the blow bar
- Clean chamber daily after each shift

EXCESSIVE WEAR AT ONE END

Problem
Blow bar wearing excessively to one side

Causes & Issues
- Machine on uneven ground – material falling to one side
- Machine isn't choke fed
- Feed dropped onto one side of feeder when using recirculating option

Solution
- Ensure the machine is on level ground
- Continuous loading

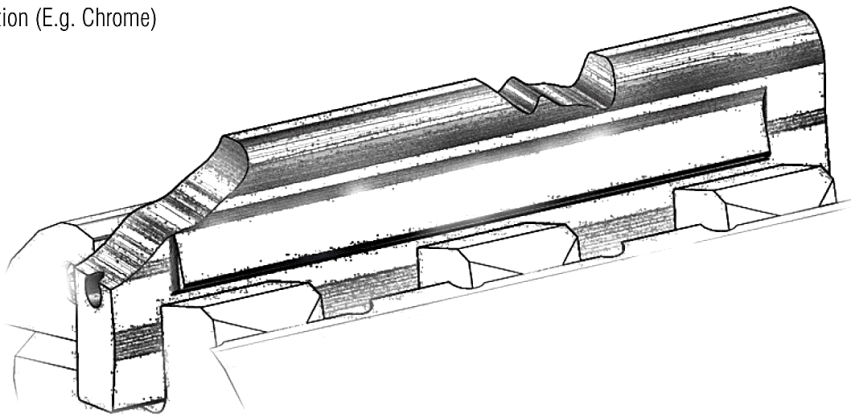
AZZU'BI – IMPACT CRUSHERS

BLOW BAR DAMAGE

Problem
Blow bar is damaged or broken

Causes & Issues

- Incorrect blow bar for application (E.g. Chrome)
- There is steel or rebar in feed
- Feed size is too large



Solution

- Select correct blow bar
- Control feed size
- Remove steel or rebar

POOR PENETRATION

Problem
Poor penetration on the blow bar means the top of the blow bar is worn down flat

Causes & Issues

- The rotor speed is too high
- Wear rates will be excessive
- Reduced output
- Creates lot of fines

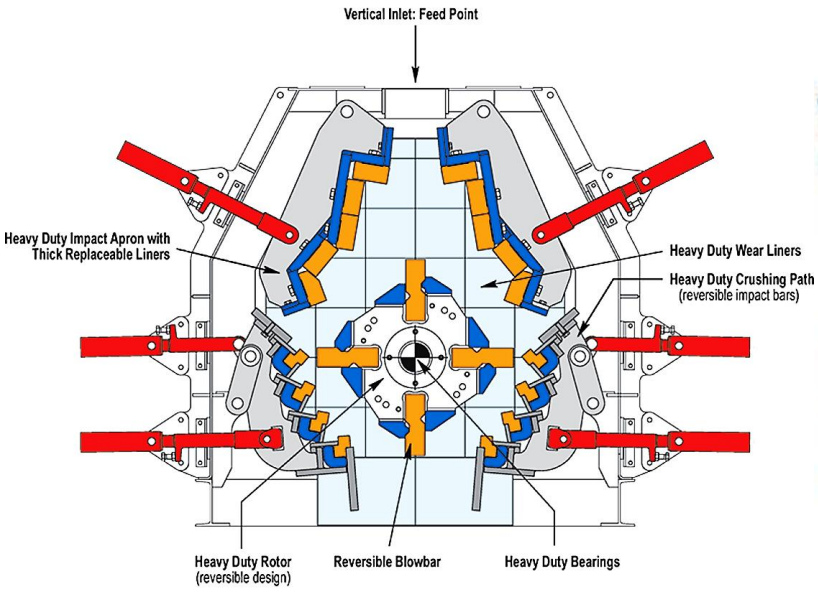
Solution

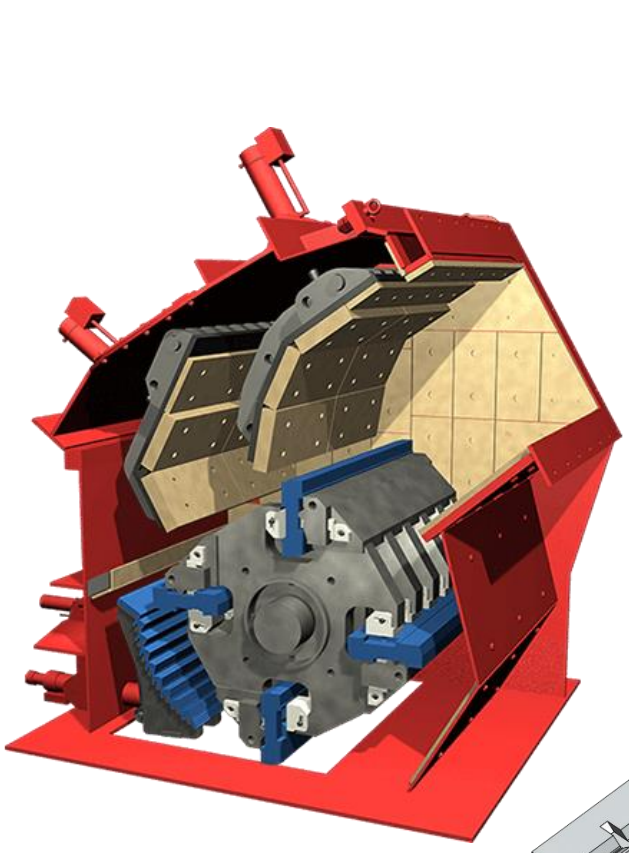
- Reduce the rotor speed
- Change configuration to 2 high and 2 low blow bars

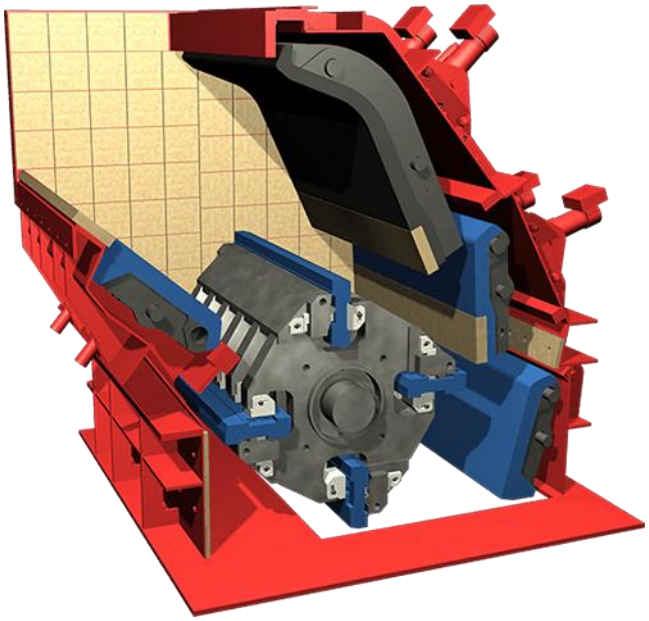
KEY POINTS TO REMEMBER WHEN CHANGING BLOW BARS

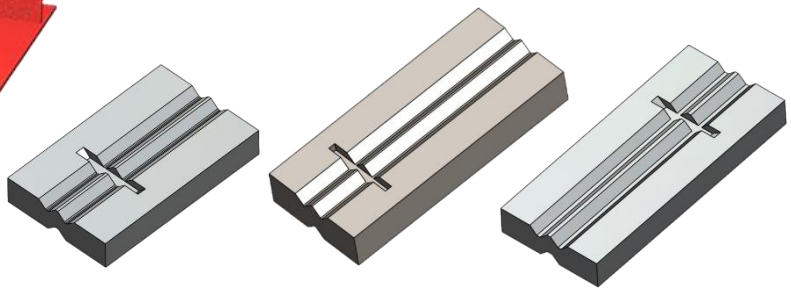
- Make sure all blow bars are in matched pairs pertaining to weight
- The weight difference of paired blow bars should not exceed 0.5kg and matched pairs should be installed on opposite sides of the rotor
- Ensure that all the mounting surfaces of the blow bar are cleaned of any debris and build-up, as well as the rotor backing bar and locating key
- Check and ensure that any deformities found on the blow bar mounting area are dressed properly to allow the blow bars to sit square in the rotor
- Ensure that all blow bars are pulled up square in the rotor

AZZU'BI – IMPACT CRUSHERS





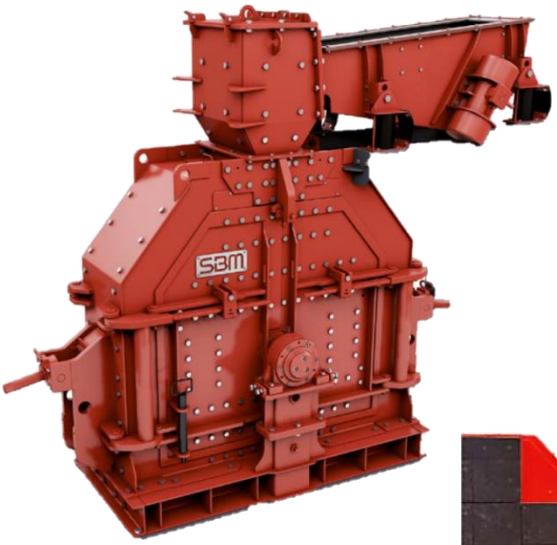


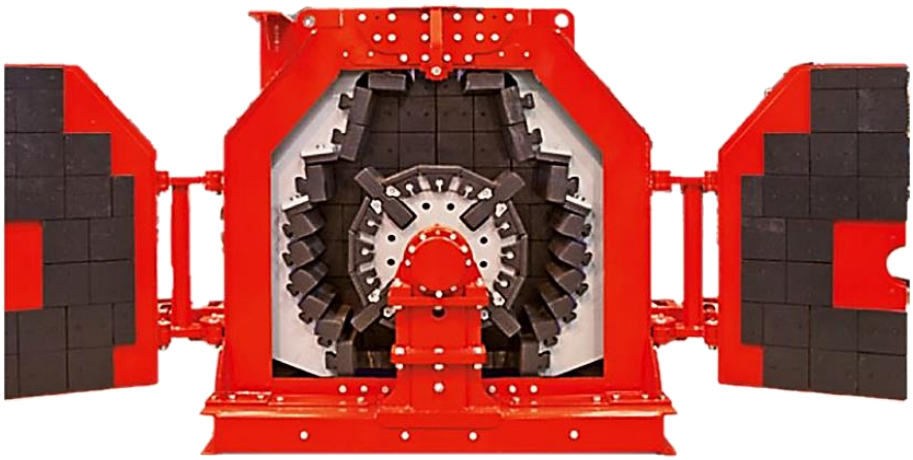


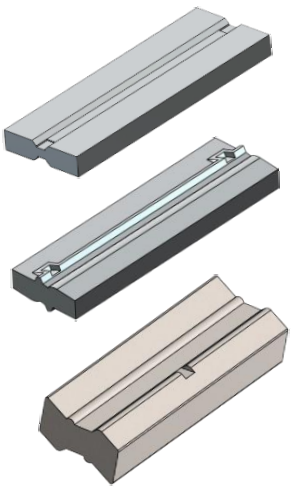
HAZEMAG

All models available: APK, APKM, APKH plus all other wearable spare parts

AZZU'BI – IMPACT CRUSHERS







SBM
MINERAL PROCESSING
A Member of MFL Group

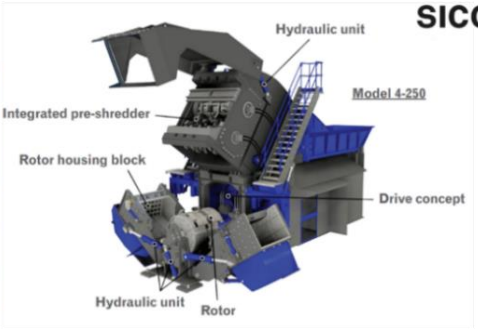
All models available: SMR series, Impact, revisable plus all other wearable spare parts

AZZU'BI METAL CASTING – PROJECTS

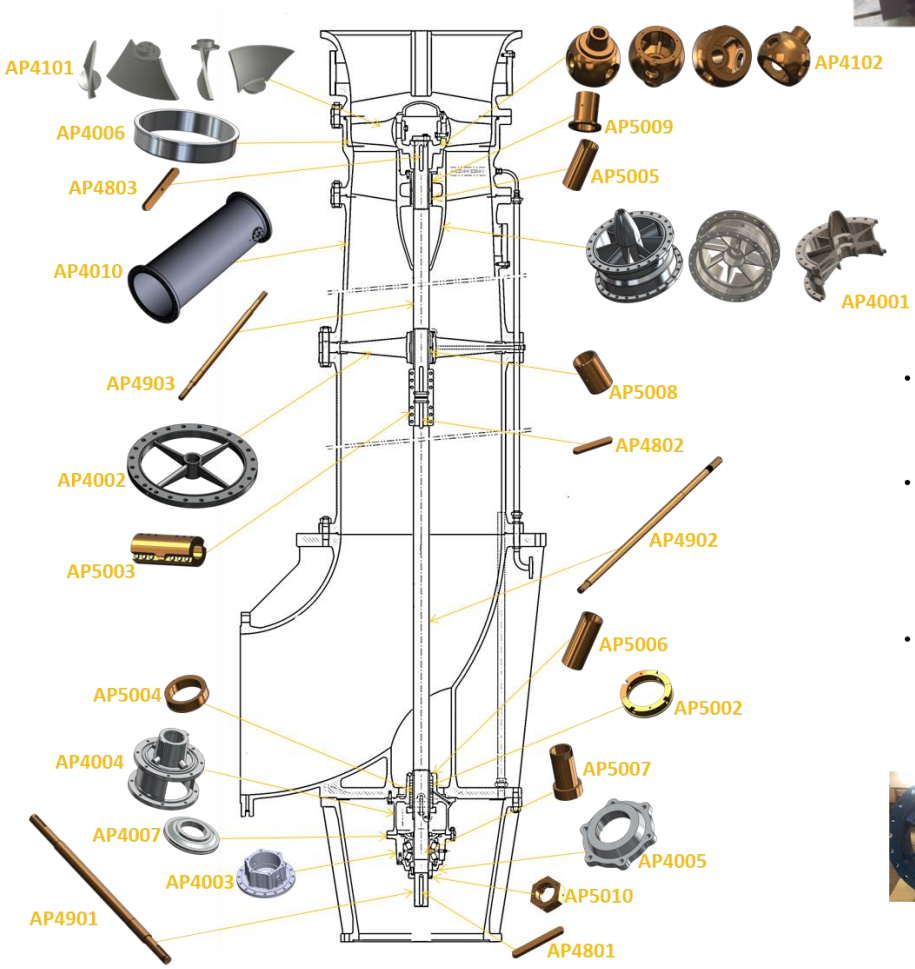
PROJECT SICON GMBH

1st of February 2018

SICON. EcoShred Compact Project



- A set of **9 pieces** with a total of **5.5 ton (600kg per part)** shipped to client at Hilchenbach - Germany on the 16th of April 2018.
- Client confirmed installing all parts successfully and the project is now operating in Australia.
- Two similar projects are expected in 2019.



PROJECT APC.

البوتاس العربية
Arab Potash

- **Two** pieces **-AP4001-** delivered to client site at Ghour Al-Safi on the **12th of July 2018.**
- Client **confirmed installing all parts successfully** and the project is now operating in Arab Potash Company at Ghour Al-Safi site.
- Expected to manufacture reaming parts of the project by **2019**.

AZZU'BI – CONTACT US

AZZU'BI METAL CASTING

AZZU'BI METAL CASTING

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الزعبـــي لســـكب المعـادن

السـعيد للصناعة و التجارة

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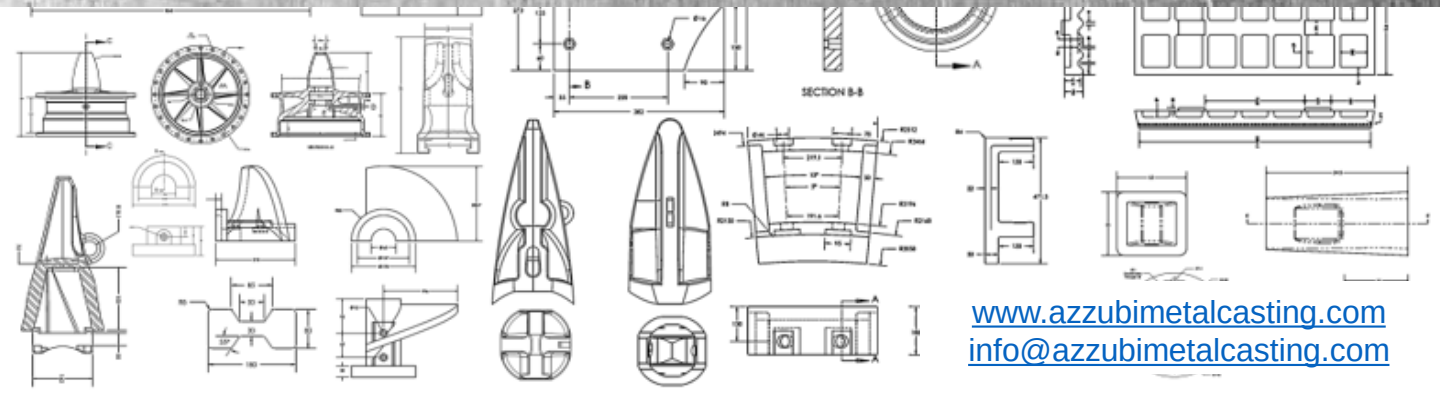

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