## Qiming Machinery Cone Crushers Wear Parts Application Guide





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# **Cone crusher wear parts**

Qiming Machinery cone crusher wear parts are produced at our own foundry and manufacturing facilities. As a result, we have complete control over quality at every step of the process, from the selection of raw materials right on through to final production.

### Increased uptime with long lasting parts

Qiming Machinery cone crusher wear parts ensure the highest possible wear life is combined with mechanical reliability and numerous mounting possibilities. Thanks to the accurately balanced structure, the Qiming Machinery cone crusher wears are easy and economical to install. On the other hand, Qiming Machinery has over 30 years in casting cone crusher wear parts, which include cone crusher mantle, cone crusher concave, and cone crusher torch rings. Our engineers design different material cone crusher wear parts to suit crush different material.



Qiming Machinery Cone Crusher Wear Parts Include:

# Manganese Cone Crusher Wear Parts

The hardness of manganese steel in the solution annealed and water quenched condition is normally around 220 HB. It is possible to strain harden this material to approximately 500 HB. In order to achieve this high hardness level, the impact loading must be high while the material wearing away from gouging abrasion is limited. It is typical in crushing applications were the main wear mechanism is gouging abrasion that the manganese steel will harden to some intermediate level, typically 350-450 HB.

Qiming Machinery supplies following grade manganese cone crusher wear parts:

- Mn14
- Mn18
- Mn22

Manganese Content	Application	Properties
Mn14	Hardest Material	Highest Impact Resistance
	Mildly Abrasive Material	Low Abrasion Resistance
Mn18	Harder Material	High Impact Resistance
	Medium Abrasive Material	Better Abrasion Resistance
Mn22	Hard Material	Less Impact Resistance
	Most Abrasive Material	Better Abrasion Resistance

#### Advantages

- ♦ Custom configuration ensures consistent production
- ♦ Long-lasting manganese steel and durable parts increase crusher uptime
- ♦ Precise fitting distributes stresses across the frame for less wear and tear on the equipment
- ♦ Foundry price with best quality
- $\diamond$  Our foundry had stocked thousand of models to help save cost

#### **Feature Pictures**



## **TIC Insert Cone Crusher Wear Parts**

Qiming Machinery wear parts with Titanium Carbide (TiC) inserts deliver outstanding durability. Cone crusher wear parts are offered in TiC versions. We choose the rhino to symbolize the toughness of the titanium carbide rods that give our wear parts such power.

Qiming Machinery has improved our customer cone crusher liner by TIC(titanium carbide) insert. Qiming Machinery TIC insert cone crusher parts are designed to improve efficiency and reduce costs by extending wear life and minimizing downtime.Compare with normal manganese cone crusher liner, our TIC insert wear parts span life can be 2-3 times. Based on our customer feedback, the more hard material to crush, the longer span life.

#### Design

- Mn14,Mn18 or Mn22 as the liner body
- > 20mm, 40mm, 60mm or 80mm titanium carbide bars
- Based on crush area to insert
- Special casting process
- Special heat treatment
- Manganese body and TIC bars fusion into part



#### Advantages

- Increased Wear Life Qiming's unique TiC insert cone liners and bowl liners design features a strengthened high-wear zone for maximum usable wear life and reduced breakage.
- Strengthens as It Works Concaves and mantles body are cast in durable manganese steel (Mn18Cr2) that gets harder the longer you work it.
- Consistent Wear More consistent wear profile for uniform product output and increased efficiency.
- Titanium Carbides TiC inserts currently available are 20mm, 40mm, 60mm, and 80mm depths.
- Fewer Change-Outs Greater durability and longer wear life means fewer change outs, more up-time, and lower maintenance costs

#### **Feature Products**



# Alloy Steel & Micro-alloying Cone Crusher Wear Parts

### **Alloy Steel Cone Crusher Wear Parts**

#### Get the right design

"Are you using the right wear parts?" Our district managers and engineers begin by collecting real-world data on your equipment: feed and discharge information, throughput rates, change out records, and measurements on worn parts.You'll then receive recommendations for parts best suited to your specific situation. Qiming Machinery is a replacement wear parts specialist, with over a century of engineering and manufacturing expertise. Our full-service facility is your one stop for crusher wear part solutions, from design and pattern making, to alloy selection and casting.

#### Get the right alloy

We design alloy steel material for our customer to help him magnetic separation the crushed material. This alloy steel just suit to cast small parts (weight around 500kg).

### **Micro-alloying Cone Crusher Wear Parts**

Micro-alloying is significantly higher in carbon and manganese content than conventional Hadfield's manganese steel, resulting in excellent wear resistance with reliability. The extra effort and skill required to manufacture it have proven worthwhile, as Micro-alloying continues to be the crusher operators' premium wear material of choice.

Our engineers add "Mo" and "Rare Earth" element into normal mn18cr2 steel. With this micro-alloying steel, the cone crusher liners can work better in some conditions.

#### User benefits

Based on data and comments provided by our customers worldwide, Micro-alloying steel offers the following benefits in many crushing applications:

- Longer wear life
- Savings in labor, backing material and downtime
- Crusher production maintained throughout liner life
- Lower cost per ton of material crushed
- 30% more than normal manganese steel parts
- More competitive price

## When To Change Cone Crusher Wear Parts

There is an optimum time to change your cone liners. Too soon and you don't get the value for the cost of the liner, too late and you suffer from significant production losses.

It is our experience that too many people lean towards too late, the optimum time to change a liner really depends on how much money you are prepared to lose to production losses to get the maximum use out of a wear component.

The first condition that is optimum is that the liner change happens when you planned it. This gives you the opportunity to have all of the required parts on hand before starting. This also allows you to perform other maintenance work on other equipment when the change is being conducted. These days it's tough to get screen media and manganese on a moment's notice and you will need to plan things if you need to rent a crane.

The second condition is changing the liner before you start to suffer significant production losses. On top adjust/screw adjust cones this is especially true as the feed size starts to shrink pretty dramatically as soon as you get to the last 1/3 of life and as you near the end the feed size can get very small, losing as much 30% of feed size. This is less of an issue with hydrocones as the feed size remains constant throughout the life of the manganese.

You should have a pretty good idea when you will need to change manganese and be able to have all of the parts on hand prior to needing to change. By having an accurate belt scale, you can know to the day when your production starts to tail off to the threshold and schedule the change immediately.

What is the threshold for a liner change? We believe the maximum threshold for a liner change is as follows: Change your liners no later than a 10% decline in production.

#### Why?

Production rate: 200 tons per hour of sellable? minus Crush Margin \$2.50 per ton hours per day 10 production hours per day.

Therefore a 10% reduction in production results in a loss of \$2,000 per day in gross profit. All of the other fixed and "variable" costs of labor and fuel keep adding up at the same rate. At \$10,000-12,000 per week it doesn't take too long to rack up serious losses, in two weeks you could afford at least two new sets of liners!

Some may say that times are tough and we can't sell everything we can produce so why not get the last ton out of that set of manganese? If you conduct four liner changes per year and you delayed each change by two weeks, you add forty four hours of operation time to your season, that's a whole week of wages and fuel!

### How To Change Cone Crusher Wear Parts

- 1. On the initial set of new liners, place a mark on the adjustment cap driver ring where the pinion tooth makes contact with a driver ring tooth when the target crusher setting has been achieved.
- 2. Keep an accurate record of the number of teeth used to compensate for liner wear on this set of liners.
- 3. After the initial set of liners have worn out, but before moving the bowl, record the total number of teeth the driver ring has moved and also paint a horizontal liner on the side of the dust shell just below the bottom of the adjustment cap. This will be the baseline for determining how close the next liner sets are to being worn out.

When a new liner set has been installed, keep a record of the number of teeth the driver ring has moved and compared this number to the total number from the initial set of liners. This will give an estimation of the liner wear. The horizontal mark painted on the dust shell will also be indicated when the liners are approaching the wear limit. The approximate minimum heights of the adjustment cap (A-dimension) with worn liners are listed in the attached tables.

# Send Pictures & Contact Information



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