

Metso

Grinding mills

Component replacement labor



Metso provides not only the parts for grinding mills. Our experts can carry out the replacement of major mill components.

When it comes to the replacement of major components for rod mills, AG/SAG and ball mills, finding the right personnel who are trained for these specialized tasks can be a challenge. Mills are critical pieces of equipment within the grinding circuit, with any downtime limiting the plant's overall production capacity. It is important to change out components quickly and safely to minimize down-time and maximize reliability. Large and heavy components often require specialized handling and installation procedures as well as tools to ensure safety. Gears, pinions, mill heads, shell and trunnion work also have precise installation tolerances and alignment requirements. Installation errors can also shorten the life of the components and impact production.

What Metso can provide

In addition to parts, Metso Field Services offers labor for major events, such as shutdowns or annual outages. Metso personnel can be utilized to fully execute the project or to supplement your on-site maintenance staff. Our crews are safety oriented, fully equipped with appropriate PPE and fully trained to perform efficient component change-outs. Metso has the expertise from having supervised and overseen thousands of mill shutdowns globally.

How it works

The first step is to determine the scope of work for Metso's Field Services team. Will they be simply assisting on-site, supervising an in-house crew, or will they be planning and coordinating all aspects of the maintenance event? Metso engineers, supervisors and/or technicians will be deployed to the site to replace components according to the agreed upon scope of supply. Special lifting procedures will be identified and advised. Our experts will carry out the required component replacement in accordance with the latest engineering specifications, adhere to standard procedures and benchmarked best practices.

Core offerings for labor services:

- Gear replacement
- Pinion replacement (turning and alignment of the the ring gear if necessary)
- Head and shell replacement
- Main bearing insert and/or seal replacement
- Inching drive installation
- Trunnion liner replacement

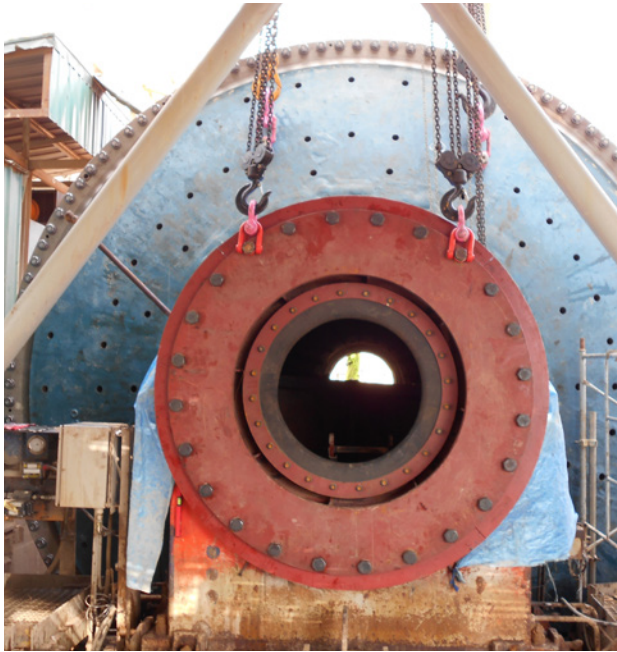
Benefits

Reduced downtime:

Metso crews utilize advanced planning tools, such as effective critical path planning, as well as scheduling and spreparation of tools lists and consumables which can potentially reduce downtime. Metso can also supply specialized work methods to speed up major component change-outs. Using component replacement labor services also brings the advantage of having one point of responsibility for the maintenance event. The supply of both parts and labor also ensures excellent warranty coverage. With access to global knowledge centers, trouble shooting and adjustments can be done with confidence by our on-site crews.

A safer working environment:

Metso crews perform these types of changes regularly and are experienced in the proper and safe installation of the components. This reduces the risks for your team by minimizing their exposure to unfamiliar and complicated change-outs.



Customer cases

Reducing mill downtime with expertise

Challenge: In 2014, Codelco's Chuquicamata mine in Chile was looking for a supplier to execute a major overhaul of 33 grinding mills as an integrated service including parts and installation. The challenge was to find a supplier with a strong local presence and end-to-end expertise. They also wished to reduce downtime during the service work.

Solution: Metso was responsible for replacing the pinions and gears for 21 ball mills and 12 rod mills, and maintaining an on-site team of about 30 people. The scope of the project involved replacing the gears and pinions for the mills. Most of the gear work was done during the mine's liner changes or when other planned maintenance was scheduled. The changes involved moving the mills to a separate workstation for service. The gear change outs were executed with certified devices, lifting elements, work platforms and site forklifts used for transferring components to the designated service work area.

Results:

- Reduced downtime by 50% in ball mills (from 8 to 4 days)
- Reduced downtime by 64% in rod mills (from 14 to 5 days)
- The work was carried out with zero accidents, with top marks in audits performed by Codelco

Quick and safe part replacement

Challenge: In 2015, The Masbate Gold Project, located on Masbate Island in the Republic of the Philippines, began having issues with bolt breakage on one of their ball mill heads. The breakage originated from the trunnion to head connection and worsened with time. The mine decided to replace the mill head.

Solution: Metso sent service engineers and lead mechanical fitters to the site to work in conjunction with Masbate's own mechanical fitters. They were responsible for carrying out the installation and commissioning work. With the existing head coming from a third-party supplier, Metso engineers also worked in conjunction with the third party's engineering group using general arrangement drawings to reference key information. Designing the head with an integral trunnion required considerable reverse engineering of the existing parts while adhering to the strict tolerances needed to replace the existing head.

Results:

- Issues with bolt breakage have stopped
- The head change out project was completed on schedule, within budget and without safety incidents
- Availability of the mill was improved by reducing unplanned service stoppages