

# Component replacement labor

## For crushing equipment

When it comes to the replacement of major components for gyratory, cone and jaw crushers, finding the right personnel who are trained for these specialized tasks can be a challenge. Major components for crushers, such as the bottomshell, mainshaft or gear, eventually need replacement and/or upgrades to take advantage of product improvements. Large and heavy parts often require specialized handling and installation procedures as well as specialized tools to ensure safety.

### 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. Metso 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 crusher shutdowns globally.



### How it works

The first step is to determine the scope of work for Metso Field Services. 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 performed. Metso experts will carry out the required maintenance scope in accordance with the latest engineering specifications, standard procedures and benchmarked best practices.



### Core offerings for labor services

#### Gyratory crushers

- Concave replacement
- Mantle replacement
- Pinion shaft assembly
- MPS replacement
- Eccentric replacement

#### HP & MP cone crushers

- Main frame replacement

### Benefits/results

**Reduced downtime:** Metso crews utilize advanced planning tools, such as effective critical path planning, as well as scheduling and staging pre-outage activities to significantly 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. Additionally, in some cases OEM warranties can be extended when Metso crews perform the installation of major parts. 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.

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## Case studies - Crushing



### Q Mainframe replacement

#### Customer challenge

A customer in South Africa needed to change out the mainframe of their Metso MP 1000 crusher due to component fatigue and stress from numerous years of service. Changing out the mainframe is a challenging task as it involves heavy lifting as well as carefully evaluating the condition of numerous components within the crusher to see if they can be reused.

#### Results

The mainframe was successfully installed and the crusher restarted. The evaluation of the crusher's older components revealed that many of the parts were acceptable for reuse, allowing the client to save some costs in terms of replacement parts.

#### Metso solution

The first step conducted was the preparation of the mainframe assembly, which involved the removal of rust preventative from the machine surfaces. Disassembly of the crusher and the grouting in of new sole plates into the foundation followed. The new mainframe was then installed and reassembly of all components was done after each part was evaluated to ensure the possibility of reuse. The adjustment ring, bowl assembly, counterweight assembly and eccentric were all reused. However, all the wear parts along with most of the hydraulic components needed to be replaced. The hydraulic and lubrication hoses were carefully checked for leaks. Finally, the hydraulic circuit was bled and the lubrication oil from the filters was changed. Upon restart all the break in readings were acceptable and within a stable range.

### Q Complete countershaft box reassembly

#### Customer challenge

A gold miner in central Canada ran into issues with a broken countershaft box on their HP 700 Metso crusher. A temporary fix was put in place until new replacement parts could be delivered to the site. The client decided against doing the repair themselves as it involved using the old spare shaft with a new countershaft box and a new pinion. Tolerances needed to be within a tight range to ensure that the crusher didn't experience excess vibrations or wear due to misaligned gear and pinion.

#### Results

Overall the repair took 3 days to rebuild the countershaft assembly and reinstall it into the HP crusher, while respecting the tight tolerances required. The Metso Field Service rep identified several potential future issues and made recommendations for start-up and running under load. The client was able to put the crusher back into operation successfully.

#### Metso solution

First steps in the service work involved preassembling the new countershaft box with the customer supplied shaft and new bushing, oil flinger, cover and seal kit. The new pinion was also installed and needed to be pre heated and shrunk onto the shaft to ensure a tight fit. The older countershaft assembly was then removed from the crusher and the new assembly installed. The end float and backlash root clearance were all verified and found to be within acceptable range.



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