

Grab some improved reliability

Regular maintenance for hydraulic grabs offers extended performance and reliability

Hydraulically-powered grabs are in use extensively in the energy-from-waste sector as well as with metal recyclers, both of which depend on this vital equipment to provide reliable service every day. The tough working environment means that regular maintenance and repair is essential to keep the business running smoothly.

Mike Baker, Hydraulics Manager at Sulzer's York Service Center, looks at what it takes to refurbish hydraulic grabs and maintain their durability.

We all remember visiting the amusements and playing with grabber claws to win prizes such as teddy bears. What a lot of people may not be aware of, is that the same type of grabber is used on an industrial scale. In the power generation industry for example, these giant claws are used to feed furnaces with fuel in energy-from-waste plants. Unlike the arcades, these grabbers can't be allowed to let the loads slip through their fingers.

These facilities help to improve the sustainability of our power sources and maintaining plant reliability is an important step in minimizing costs. Handling waste products and scrap metal is an arduous process, one that causes significant wear to both the mechanical and hydraulic components. To keep operations running, operators will often keep a spare grab on site to enable repairs and maintenance to be completed without causing disruption to the business.

Prolonging safe operation

Modern, orange peel grabs, commonly operated in waste applications, are essentially self-contained units with an electrical control being the only connection to the operating vehicle. The hydraulic reservoir, cylinders, pump and electric motor are all installed within the frame of the grab, ensuring the process to swap grabs is quick and simple.

Depending on the application, grabs can operate for between 18 months and two years before a service is required. After this time, the tines or petals of the grab will have become worn, and some of the hydraulic circuits may leak. Whatever the condition of the grab, it is important to complete regular maintenance checks to ensure continued safe and reliable performance.

It is important to identify a maintenance provider that can deliver the necessary services quickly and when they are needed. These pieces of equipment require expert support and specialist parts to ensure a quick turnaround, so some providers will hold spare parts in stock and minimize the time for repair.

Comprehensive inspection

To fully assess the condition of the whole grab it is important to fully dismantle it down to individual component level. This allows every part to be cleaned and inspected, with special attention being paid to the dimensions of bushes, pins and pivot bores as well as the seals and dimensions of the hydraulic cylinders.

For those defects that are more difficult to see, non-destructive testing (NDT) techniques, such as magnetic particle and liquid dye penetrant testing should be used to discover any welds that have suffered from fatigue or excessive loads. This also applies to the hydraulic tank and the plate welds on the petals of the grab.

While dealing with the hydraulic tank, it is important to thoroughly clean the inside of the tank to remove any contamination and get the grab ready for reassembly. At this point, it should be possible to put together a comprehensive list of work required to repair or replace all the worn components for the operator.

Good as new

Installing the new parts, either purchased or manufactured, is just the beginning of a refurbishment; new pivot pins, bushings and seals are used to reattach the petals to the main frame.

The hydraulic cylinders are resealed, having re-chromed the rods if necessary, and comprehensively pressure tested along with the hydraulic power pack, the control valves and the reservoir. Using a hydraulic datalogger it is possible to record pump pressures as well as pressures on both sides of the cylinders and provide the customer with a complete record of the results.

At the same time, new hard-facing is applied to the petals. This cross-hatched welding increases the durability of the steel plates that are required to operate in such arduous conditions. The welding acts as a sacrificial surface that can be replaced during the refurbishment and prevents wear of the base material.

Once all the components have been repaired, they are reassembled, with a new hydraulic filter fitted and clean oil added, it is possible to complete the function testing of the grab and then package it ready for shipment back to the customer. All of this can be achieved in two to three weeks, if parts are already stocked, ensuring the spare grab is back on site and ready to go back to work.

Sulzer offers considerable engineering expertise to many industrial sectors and its service center in York has all the facilities required to deliver a complete grab overhaul efficiently and cost-effectively. This helps plant operators to minimize operating costs and continue to deliver sustainable energy to our homes.

Image Captions:

Image 1: Effective maintenance of waste grabs ensures continued safe and reliable performance

Image 2: Special attention is paid to the dimensions of bushes, pins and pivot bores

Image 3: Comprehensive testing of the electrical and hydraulic circuits affirms continued reliable operation of the grab

Image 4: New hard-facing increases the durability of the steel plates

About Sulzer

Sulzer is the leading worldwide, independent service provider for large rotating equipment. With technically advanced and innovative service and maintenance support solutions, Sulzer provides a turnkey service that provides its customers with the peace of mind to focus on their core operations.

Included in this package is a highly efficient and dependable high-voltage coil manufacturing and supply service, delivered from a purpose built facility within the Birmingham Service Centre, UK. It is recognized for producing very high quality coils for high voltage motors and generators; designed, manufactured and shipped by a highly skilled and dedicated team to ensure fast and reliable service.

With an in-house copper rolling mill, Sulzer customers can benefit from round-the-clock manufacturing to ensure that every coil is delivered on schedule. In conjunction with constant quality control and full HV on-site testing facilities, Sulzer can deliver quality, precision and speed, any time, day or night.

For further information click [here](#) or e-mail: marketing.resuk@sulzer.com, or phone +44 (0)121 766 6161.

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