

Lean Manufacturing

The Importance of Ergonomics in Your Metal Forging Operation

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For years, manufacturers have relied on lean processes to improve productivity and to reduce waste. This is certainly a good thing from an operations standpoint. However, from a safety and health perspective, lean manufacturing can have a few drawbacks.

For example, lean practices make jobs highly repetitive. As pointed out in *this article* from *Industrial Engineer*, repetitive jobs often eliminate critical rest time for employees. "The repetitive jobs take their toll on employees as stressful postures and high forces are repeated over and over throughout the day," the article says. "In the long run, the financial savings from the productivity gains and quality improvements are used to pay for the higher cost of workers' compensation claims."

This is why many forges and other industrial metal-cutting organizations have incorporated ergonomics into their production processes. According to the *U.S. Occupational Safety and Health Association* (OSHA), ergonomics is defined as fitting a person to a job to help lessen muscle fatigue, increase productivity, and reduce the number and severity of work-related injuries. Strategic equipment placement and improved ergonomics not only keep employees safe and healthy, but they are key aspects of high productivity and optimized workflow. The fewer times an operator touches a material, the fewer chances for injury and human error, both of which contribute to productivity.

Not sure where to start? An article from *IAC Industries* describes possible workplace risk factors and suggested solutions. For example, there are at least six different types of musculoskeletal risk factors operators may face:

1. Forceful exertions and motions.
2. Extreme or repetitive exertions, postures and motions.
3. Duration of exertions, postures, motions, vibration and cold.
4. Insufficient rest or pauses.
5. Work factors (for instance, close performance monitoring, wage incentives, machine-paced work).
6. Environmental factors.

The article then goes on to describe an example of an ergonomic workstation design. According to IAC, incorrect working height is often responsible for extreme postures and motions at the workstation. Recommendations for the appropriate working height are as follows:

- Six inches above elbow height for fine work such as proofing documents or inspecting small parts.
- Four inches above elbow height for precision work such as mechanical assembly.
- Same height as elbow for writing or light assembly.
- Four inches below elbow for coarse or medium work such as packaging.

Of course, this is just one of the many ways a manufacturer can improve ergonomics within their operation. Another article from Ergonomics Plus, an Indianapolis, IN-based company, offers a 10-point checklist to help managers create a framework for building a successful ergonomics process. According to the company, a solid ergonomics process doesn't have to be complicated to be successful, but it can be challenging to get all the right pieces in place and achieve sustainable results. You can review the entire checklist *here*.

If these suggestions feel overwhelming or you don't quite know where to start, you may want to consider bringing in some professional help. Earle M. Jorgensen Company (EMJ), a metal service center featured ***here*** in a white paper from the LENOX Institute of Technology, decided to perform an in-depth ergonomic study at one of its metalworking facilities. With the help of a third-party resource and input from its shop floor employees, the company made several changes to the shop floor to eliminate unnecessary handling and transportation of material. Ergonomic improvements ranged from repositioning band irons to adjusting the height of staging tables. By optimizing the workflow, EMJ has seen a reduction in employee injuries, improvements in operator efficiency, and increased output. The service center has also seen an increase in shop floor morale, as operators feel they are playing a critical role in helping the facility succeed.

In what ways could you incorporate ergonomics into your forging operations?

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