

6 Ways to Prevent Ergonomic Injury During Equipment Changeovers



The equipment changeover process is a breeding ground for sprains, strains, and other ergonomic injuries. It's during this process that workers engage in high-risk tasks like:

- Removing and installing dies, rollers, blades, fixtures, and other components.
- Loosening tight fasteners.
- Aligning parts with mounting points.
- Maneuvering equipment in restricted spaces.

Ergonomic injuries often arise when a component sticks, won't line up, or must be held in position while someone else secures it. Eliminating these hazards is an imperative for OHS directors of companies where equipment changeovers are common practice. While individual strategies must be based on site-specific conditions, equipment, and operations, they should all be rooted in the same general approach: First, identify high-risk movements in the changeover procedure itself and then eliminate the need for workers to use excessive force, awkward postures, or improvised handling methods. Here are six things you can do to implement that strategy effectively.

1. Identify the Difficult Movements, Not Just the Heavy Components

Before changeovers begin, have supervisors identify tasks that require workers to pull a stuck component free, hold a part while loosening fasteners, or reach behind machinery. Assess the actual movement, force, and working position, not just the component's weight. Thus, for example, removing a guard or fixture that doesn't weigh much should still be flagged as posing high risk of shoulder strain if the worker must reach across a machine while pulling the guard or fixture toward the body.

2. Eliminate the Need to Force Components into Position

Workers may have to push, pull, or lift to line up misaligned dies, rollers, replacement tooling, machine fixtures, and other components with mounting holes. Where practicable, use locating pins, alignment guides, adjustable fixtures, or positioning devices to control these movements. For example, a die that must be shifted sideways to align its mounting points may be better positioned using a guided die cart or mechanical positioning system than by workers levering it into place. Repeated alignment difficulties may also indicate worn guides, damaged mounting points, or dimensional inconsistencies requiring correction.

3. Implement Measures for Handling Components that Stick or Resist

Removal

Corrosion, residue, thermal expansion, or overtightened fasteners can turn routine removal into a high-force task. Flag these components before changeovers occur. The answer to unexpected resistance should be not to pull harder but to identify the cause and fix the problem by requiring workers to use suitable removal procedures, extraction tools, and mechanical assistance. Example: A roller that won't slide out of its housing should be removed with an appropriate puller or extraction arrangement rather than repeated forceful pulling.

4. Eliminate Awkward Holding & Fastening Tasks

During installation, workers may have to support a component while starting bolts, aligning shafts, or securing mounting brackets. This combines sustained muscle loading with awkward hand and wrist positions. Where coordinated movements are necessary, define who controls the movement and when the component can safely be released. Use temporary supports, component stands, clamps, or fixtures to hold parts in position. Example: A shaft or coupling should be supported and aligned using suitable positioning equipment rather than being held by hand while a second worker attempts to secure it.

5. Incorporate Ergonomic Controls into Changeover Schedules

Production targets may encourage workers to skip setting up a hoist, rush alignment, or manually handle a component that should be mechanically positioned. Include the setup and use of required handling aids in the standard changeover procedure and allotted time. For example, if a lifting device takes several minutes to position, that time should be part of the

planned changeover—not treated as an avoidable delay. Supervisors should also investigate recurring overruns to determine whether poor access, inadequate tooling, or an impractical procedure is encouraging unsafe shortcuts.

6. Use a Changeover-Specific Pre-Job Check

Before a changeover job begins, require supervisors to confirm:

- **Removal:** Could a component bind, stick, or require unusually high extraction force?
- **Alignment:** Are guides, locating pins, or positioning devices needed to bring components into place?
- **Installation:** Can components be supported while shafts, fasteners, or mounting brackets are secured?
- **Access:** Will workers have to reach across machinery, work below knee level, or maintain a twisted or awkward posture?
- **Equipment and time:** Are the required handling aids available, and has sufficient time been allotted to use them?

Any task that can't be completed using the planned method should trigger a review so that workers don't try to improvise their own solution on the fly.