

This is the fourth in a series of Safety Tip Sheets addressing common hazards found within the forging industry. These Tip Sheets are designed to bring awareness and provide practical information on methods for reducing these injuries.



Safety Tip Sheet No. 4

Manual Material Handling

In many forging operations workers are required to lift, carry, handle, push, or pull loads. Although mechanical devices are often available to assist the worker, there will still be situations where manual handling tasks are required. These tasks may create stress on the back, neck, and shoulders. However, if management and plant operations people work together to identify hazards and develop interventions, they can greatly reduce the level of stress on the worker.

Risk Factors to Look for

Manual material handling tasks expose workers to physical risk factors. If these tasks are performed repeatedly or over long periods of time, they can lead to fatigue and chronic injury. If performed at the limits of an individual's capabilities they may result in acute injuries. The main risk factors, or **conditions**, associated with the development of injuries in manual material handling tasks include:

- o Awkward postures (e.g., bending or twisting at joints, back, or neck)
- o Repetitive motions (e.g., frequent reaching, lifting, carrying)
- o Forceful exertions (e.g., carrying, pushing, pulling, or lifting heavy or bulky loads)
- o Pressure points (e.g., grasping [or contact from] loads, leaning against parts or surfaces that are hard or have sharp edges)
- o Static postures (e.g., maintaining fixed positions for a long time)

What Can Management Do to Reduce These Risk Factors?

- o Plan the workflow to eliminate unnecessary lifting, pushing, pulling, and carrying.
- o Organize the work so that the physical demands and work pace increase gradually.
- o Develop work processes that minimize continual heavy lifting or forceful exertion.
- o Develop work/rest schedules that are appropriate to the tasks performed and the length of shifts.
- o Minimize the distances loads are lifted, lowered, and carried.
- o Provide devices such as lifts, tables, or carts that allow workers to lift and lower within their power zone (e.g., above the knees, below the shoulders, and close to the body) and minimize torso bending and reaching. Avoid moving loads from overhead, floor level, or out and away from body.
- o Provide carts, wagons, or other transport devices to move loads over longer distances.
- o Store materials and/or products off the floor.
- o Order, store, and ship items by the pallet so they can be lifted and moved using forklifts or other mechanical devices.
- o When storing heavy or bulky materials, store the lightest less infrequently used items close to the floor or overhead.
- o For loads that are unstable and/or heavy (generally heavier than about 40 to 50 pounds):
 - o Tag the load to alert workers to the hazard.
 - o Reduce the weight of the load by:
 - § Specifying fewer items in the container.
 - § Changing to a smaller and/or lighter-weight container.
 - § Ordering product in smaller units
 - o Instruct workers to repack containers so contents will not shift and the weight is balanced.
 - o Train to use team lifting as a temporary measure for heavy or bulky objects.
 - o Provide containers that have cutouts for the hand, or handles when possible.
- o Clear spaces to improve access to materials or products being handled. Easy access allows workers to get closer and reduces reaching, bending, and twisting.
- o Ensure that aisles and other walkways are clear of obstacles, clean, and well maintained.

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What Can Workers Do to Reduce These Risk Factors?

- o Use all engineering and/or administrative controls developed for your task.
 - o Understand when and how to use lifting equipment.
 - o Repack containers to improve stability and reduce the weight of the load.
 - o Adhere to company developed rotation, rest, and recuperation schedules.
- o Plan the lift and always:
 - o Check for heavy load, tags, or warning labels.
 - o Test load for stability and weight before lifting.
 - o Wear appropriate shoes to avoid slips, trips, or falls.
 - o Lift only as much as you can safely handle by yourself, usually less than 40 pounds.
 - o Keep the lifts in your power zone (i.e., above the knees, below the shoulders, and close to the body), if possible.
 - o Use extra caution when lifting loads that may be unstable.
- o When lifting:
 - o Get a secure grip. Use hand holds or cutouts if provided.
 - o Use both hands whenever possible.
 - o Use smooth, even lifting motions.
 - o Keep the load as close to the body as possible and directly in front of the body.
 - o Keep your back straight and chin up during the lift.
 - o Do not twist your body. Move your feet, and step towards the destination location.
 - o The use of periods of warm up prior to full exertion may be appropriate as part of a comprehensive ergonomic program.

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