

## Ergonomic Hand Tools Reduce Stress

Ergonomically designed hand tools help prevent cumulative trauma injuries and ease labor-intensive efforts.

By Ronald L. Holland, Cooper Tools - Product Specialist/Technical Services



Xcelite® ECP100, SAS3210, and CJS100

Companies that utilize hand-crimping tools should be concerned with cumulative trauma injuries of the hand, since a cumulative trauma injury costs an average of \$29,000 in lost wages and medical treatment, according to the National Council on Compensation Insurance. Well-designed hand tools, together with good workstation and process design, can reduce the risk of workplace injuries. They can also increase worker satisfaction and boost productivity.

By examining the anatomy of the hand, Cooper Tools has successfully provided tool solutions that both maximize the force output and minimize stress for many hand operations. Examples of these tools are shown above – ECP100, SAS3210 and CJS100.

## Hand Tool Design Guidelines

With the proper use of well-designed hand tools, work-related stresses and injuries can be reduced. While tool designers cannot control the circumstances of tool usage, they can optimize the tool by adhering to the following guidelines:

- *Mechanical advantage should be optimized.* The most important and fundamental way to reduce hand pressure and stress is to increase the mechanical advantage of the tool.
- *Grip and hand comfort considerations should be observed.* Tools should be designed so the hand can apply the most force with the least stress.
- *Mechanical stress concentrations should be avoided.* Tools should be designed to spread mechanical stress as evenly as possible.
- *Handle materials should be optimized.* The type and texture of handle material selected is very important; it greatly affects comfort, which in turn affects the maximum force that can be applied by the tool.



### **Xcelite ErgoCrimp Plus® – ECP100**

The ErgoCrimp Plus is one of the world's most advanced crimping tools. Its patented design provides up to 50% better mechanical gain than any other tool, which results in the lowest handle forces. Its uniquely designed handles help to provide comfort while spreading the workload evenly throughout the hand or hands if two-handed operations are necessary. It can be ordered with or without die sets installed. ECP100 for Insulated Red, Yellow and Blue insulated connectors is shown as an example.



### **Xcelite Self-Adjusting Wire Stripper – SAS3210**

This self-adjusting wire stripper has the **widest** stripping range of any tool of its kind and is capable of stripping wires from 34 to 8 AWG without adjustment. It features a small shape and form with rounded and bi-molded handles for added comfort. It provides one of the highest mechanical gains in proportion to its size, eliminating the need for multiple tools. Easily interchangeable stripping blade cassettes enable precision stripping of a wide variety of insulation types.



### **Xcelite Cable Jacket Stripper – CJS100**

The cable jacket stripper features fine adjustability and repeatability assured by the 9-position blade cutting adjustment available. The CJS100 makes it easy to strip the jacket from most cables up to 0.43" in diameter. Its compact shape and design make it easy on the hand and pocketable. It offers a unique replacement blade cartridge feature to extend the life of your tool for thousands and thousands of nick-free strips ahead.