Preventing Incidents With Proper Torque Wrench Handling

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Ask around among people that use hydraulic or pneumatic torque wrenches on the job and, chances are, almost everyone knows someone that has been injured or has experienced an injury themselves. Injuries can range from pinched fingers to broken hands and fingers, or even toxic oil “injections.” The majority of safety incidents that occur while using hydraulic or pneumatic torque wrenches can be prevented through proper handling of the equipment, preventative maintenance, and annual safety trainings.

The most common injury stems from the reaction arm. Unless a reaction washer (see fig. A) is used, all high-powered torque wrenches require a reaction arm, which abuts against the adjacent nut to stop the tool from turning while the drive turns the nut. Improper tool handling is usually the cause of most reaction arm related injuries. If the tool being used cannot be operated hands-free, a handle should be used with the tool to prevent the operator from holding the tool near the reaction arm. Additionally, if the tool operator is not controlling the pump connected to the tool, the operator should disconnect the hose coupling from the tool until he/she is ready for operation; this makes the tool non-functional and can prevent an unexpected or accidental start. The best way to prevent these kinds of accidents is through regular safety training.

Another way to prevent reaction arm injuries is through the use of specialized reaction fixtures that are designed for your application. New technology is available that allows for tools to be operated hands-free and without external reaction on all applications. For tools that are not compatible with this new technology, it is best to find a reaction fixture, that prevents movement of the reaction arm by either

“cupping” an adjacent nut (see fig. B) or bracing against the application itself in a way that prevents movement as the nut is turned. This allows the operator to place the tool on the job and apply torque without worrying about reaction arm pinch points.

Performing regular maintenance on all of your bolting equipment, or scheduling inspections and preventative maintenance appointments for your equipment can also make bolting jobs safer. Even the best accessories can’t prevent an accident that results from worn or damaged equipment. It’s critical to schedule regular intervals to inspect tools and perform preventative maintenance like seal replacements and fresh lubrication of moving parts. When performed regularly, these simple actions can make tools operate safer and last longer.

Additionally, the tools, and the applications they are being used on, should be inspected to assure proper reaction points and safe working conditions. If a hydraulic hose is kinked or damaged it should be replaced immediately. At 10,000 psi of pressure even the smallest hole in the hose can emit a dangerously fast stream of hot hydraulic oil. The oil itself should be replaced after every major use and it should always be replaced with non-toxic oil. This keeps the job safer, and ensures the longevity and performance of the hydraulic tools used with the pump.

One of the simplest ways to prevent injury while using hydraulic or pneumatic torque wrenches is to perform a pre-job safety check every time a hydraulic or pneumatic torque wrench is going to be used on the job. The work area should be clear and well lit and the tool operator should always be wearing proper protective equipment (hard hat, safety glasses, steel toe boots, gloves, etc). All sockets being used with hydraulic or pneumatic torque wrenches should be impact-grade and should be inspected before use to be free of any cracks or defects. Hoses should be inspected for kinks, holes or cracks and should be replaced every 2-3 years (depending on usage) to be safe. The tool and reaction fixture should be inspected

for defects and test-fit on the application before use, and the tool should be run with low pressure and no resistance to test for leaks before the job starts.

These steps will help prevent bolting incidents and increase productivity on the job. Remember: On-site safety training should be given to tool operators on a yearly basis to make sure that anyone who handles a tool is up to date on the latest safety procedures. Keep Bolting Safe!