MACHINERY & EQUIPMENT: Take 5 Steps to Comply with Requirements for Powder-Actuated Tools



Powder-actuated tools are devices that use an explosive force to propel or discharge a fastener such as a bolt, clip or pin into a hard object or material, such as steel or concrete. Because these tools operate in much the same way as a gun works, they pose similar safety hazards. As a result, the OHS laws usually impose specific safety requirements on powder-actuated tools in addition to the usual requirements that apply to all hand and power tools. So here's a look at the steps to take to comply with the specific requirements for such tools in your workplace.

Defining Our Terms

In this article, we'll use the term 'powder-actuated tools' throughout, although some OHS laws use terms such as explosive actuated fastening tool and explosive-operated tool.

TAKE 5 STEPS

Every jurisdiction has requirements in its OHS regulations that specifically apply to powder-actuated tools. In some jurisdictions, such as BC, NB, NL and QC, these requirements are extensive; in others, these tools are primarily covered by the requirements for all hand or power tools, with only a few

specific requirements for powder-actuated tools only. As always, you should consult and comply with the requirements in your jurisdiction's OHS laws. But taking these basic steps should help all Canadian employers comply with the applicable requirements:

[learn_more caption="Step #1: Ensure Tool Meets Designated Standard or Design Requirements"]

Powder-actuated tools must be properly designed and constructed to ensure their safe use. So the OHS laws may require any powder-actuated tool used in your workplace to comply with a designated CSA or ANSI standard, usually:

- CSA Standard Z166-1975, Explosive Actuated Fastening Tools; or
- *ANSI Standard A10.3-1995, American National Standard for Construction and Demolition Operations ' Safety Requirements for Powder-Actuated Fastening Systems.*

The OHS laws may also include additional design requirements that these tools must meet to be used in your workplace. For example, a powder-actuated tool may need to be designed so that the operator may select a power level appropriate for the task at hand, and the tool and any related guards may need to be marked with the manufacturer's name or trademark, model number and serial number. Also, such tools may be required to be designed so they can't be discharged during loading or preparation to fire, or if they're dropped from any height. And they may require two distinct and separate motions to be operated.[/learn_more]

[learn_more caption="Step #2: Select Appropriate Tool"]

All powder-actuated tools are not the same. For example, there may be high and low velocity models of such tools, and the different models may use various kinds of fasteners and cartridges. So it's important that workers use the appropriate tool for the job.

The OHS laws generally require the use of a low velocity powder-actuated tool, which are less hazardous than high velocity models, unless there's no low velocity model available that's capable of doing the job. In addition, the regulations may *bar* the use of these tools in certain circumstances, such as:

- In an explosive or flammable atmosphere;
- To drive fasteners into certain kinds of materials, such as very hard or brittle materials, hollow concrete blocks, curved or rounded objects and thin materials without proper backing; and
- Within designated distances from the unsupported edges of the material.[/learn_more]

[learn_more caption="Step #3: Set Rules for Safe Use of the Tools"]

As with any tools or equipment, you should set safe work rules and procedures for the use of powder-actuated tools. (See this chart for the specific requirements for using powder-actuated tools in the OHS regulations in each jurisdiction.) The box at the bottom of the page spells out some basic dos and don'ts for these tools. In general, your safe work rules and procedures should cover:

- Selection of appropriate powder-actuated tools;
- Inspection of tools before their use;
- Loading of the tools;
- Firing of the tools, including how to deal with misfires;
- Use of proper PPE, such as safety glasses; and
- Storage and maintenance of the tools.

***Insider* Says:** In addition to your safe work rules and procedures for powder-actuated tools, you should also ensure that workers using such tools have easy access to the manufacturer's operating instructions for the tools and any

related power load and fastener charts.[/learn_more]

[learn_more caption="Step #4: Train Workers on Safe Work Rules"]

Because improper use of powder-actuated tools can be very dangerous'both to the operator and anyone in the vicinity'it's critical that only authorized workers who've been properly trained on the use of these tools be permitted to use or even handle them. In fact, some jurisdictions require workers to be certified to use powder-actuated tools. For example, Newfoundland's OHS regulations state that a worker may not operate a powder-actuated tool until he or she:

- Has been trained in the use of the specific make and model of tool and is in possession of a valid operator's certificate issued by the manufacturer or other qualified instruction agency;
- Has demonstrated that he or she can use the tool effectively and safely;
- Is familiar with the regulations;
- Has been authorized by his or her supervisor to use the tool; and
- Is wearing the required PPE.

Training on powder-actuated tools should cover, at a minimum:

- Your safe work rules and procedures for these tools;
- The manufacturers' instructions for their tools;
- Selection of the appropriate tool, accessories, fastener and power load for each job;
- The limitations of each type of tool, fastener and power load; and
- Maintenance, repair, inspection and use of the tools.[/learn_more]

[learn_more caption="Step #5: Properly Store Tools When Not in Use"]

It’s important to keep powder-actuated tools out of the hands of untrained workers and anyone else in the workplace. So make sure that the tools as well as their fasteners, guards, cartridges and/or power loads are properly stored when not in use. For instance, the tools should be unloaded and stored in a locked container. And power loads of different power levels and types must be kept in different compartments or containers so as not to be confused.[/learn_more]

BOTTOM LINE

Failing to comply with the requirements in the OHS laws for powder-actuated tools can endanger workers and expose employers to liability. For example, a worker performing sheet metal work was carrying a fastening gun down a set of stairs when the gun fired a steel pin into his body. He was treated at the hospital. A court convicted his employer of failing to ensure a worker was adequately trained on the use of an explosive actuated fastening tool and to ensure the tool was used in accordance with the manufacturer’s operating manual. It fined the company $50,000 [*Agrivac Ventilation & Fabrication*, Ontario Govt. News Release, June 26, 2015]. So follow these steps to protect your workers from similar incidents and your employer from such fines.

[box]

12 Dos & Don’ts for Using Powder-Actuated Tools

Here are some basic dos and don’ts for the safe use of powder-actuated tools:

DO inspect powder-actuated tools thoroughly before using them, paying particular attention to the cleanliness of the chamber and barrel.

DON’T handle or use such tools unless you’re trained and authorized to do so.

DO load the tool only after inspection reveals that the breech and barrel are free of foreign matter and only to prepare it for immediate use.

DON’T mechanically hold the trigger of a powder-actuated tool in the ‘ON’ position unless the manufacturer’s specifications permit it to be used that way.

DO use only cartridges, fasteners and accessories designed for that tool.

DON’T point such a tool at anyone’whether it’s loaded or unloaded.

If a powder-actuated tool misfires, **DO** hold the tool firmly against the work surface for at least 5-15 seconds and then follow the manufacturer’s instructions for misfires. Until the cartridge is ejected, keep the tool pointed in a direction so that it can’t injure anyone.

DON’T use defective or unsafe powder-actuated tools until they’ve been satisfactorily repaired.

DO wear appropriate PPE, especially eye, face, head and hearing protection.

DON’T repair or modify a powder-actuated tool unless you use parts made or supplied by its manufacturer.

If using such a tool in a confined space, **DO** ensure adequate ventilation is provided.

DON’T leave a loaded tool unattended.[/box]