



General Hose Safety Information



CHEMICAL HOSE WARNING:

A failure of chemical hose in service can result in injury to personnel or damage to property. All chemical hose manufacturers recommend specific hose constructions to handle various chemicals. THE MANUFACTURER SHALL BE CONSULTED TO DETERMINE WHAT PARTICULAR HOSE MAY BE USED TO HANDLE A SPECIFIC CHEMICAL.

WARNING: Do not use chemical hose at temperatures or pressures above those recommended by the manufacturer. All operators must be thoroughly trained in the care and use of this hose and must at all times wear protective clothing. A hose or system failure could cause the release of a poisonous, corrosive, or flammable material.

Chemical Compatibility

A list of chemicals and hose compatibilities is available from a Boston Distributor. It is imperative that this list is used as a "guide" only. The degree of resistance of any elastomer with a particular fluid depends upon such variables as temperature, concentration, pressure conditions, velocity of flow, duration of exposure, aeration, stability of flow, coupling compatibility, etc. Therefore, if doubt exists, it is not advisable to use the hose until verification is provided by a Boston specialist. If this is not practical, testing should be devised to simulate as realistically as possible the same service conditions and evaluate the hose's performance.

POWER TOOL PRECAUTIONS

Power tools can be hazardous when improperly used. There are several types of power tools, based on the power source they use: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated. Employees should be trained in the use of all tools - not just power tools. They should understand the potential hazards as well as the safety precautions to prevent those hazards from occurring.

The following general precautions should be observed by power tool users:

- * Never carry a tool by the cord or hose.
- * Never yank the cord or the hose to disconnect it from the receptacle.
- * Keep cords and hoses away from heat, oil, and sharp edges.
- * Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- * All observers should be kept at a safe distance away from the work area.
- * Secure work with clamps or a vise, freeing both hands to operate the tool.
- * Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool.
- * Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.
- * Be sure to keep good footing and maintain good balance.
- * The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
 - All portable electric tools that are damaged shall be removed from use and tagged "Do Not Use."



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PNEUMATIC TOOLS

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders.

There are several dangers encountered in the use of pneumatic tools. The main one is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool.

Eye protection is required and face protection is recommended for employees working with pneumatic tools.

Noise is another hazard. Working with noisy tools such as jackhammers requires proper, effective use of hearing protection.

When using pneumatic tools, employees must check to see that they are fastened securely to the hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool will serve as an added safeguard.

A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel.

Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.

Compressed air guns should never be pointed toward anyone. Users should never "dead-end" it against themselves or anyone else.



Pneumatic power tools shall be secured to the hose in a positive manner to prevent accidental disconnection.

Safety clips or retainers shall be securely installed and maintained on pneumatic impact tools to prevent attachments from being accidentally expelled.

The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

All hoses exceeding 1/2-inch (1.27-centimeter) inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure. Safety device, as mentioned above, means a contrivance or device that will prevent injury or avert danger and will automatically cut off the flow of compressed air, if a hose line ruptures or becomes disconnected. Applies only to pneumatic power tools.



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Hose and hose connections used for conducting compressed air to utilization equipment shall be designed for the pressure and service to which they are subjected.

The use of hoses for hoisting or lowering tools shall not be permitted.

Compressed air used for cleaning purposes shall be reduced to less than 30 pounds per square inch (psi) (207 KPa) and then only with effective chip guarding and personal protective equipment. This requirement does not apply to concrete form, mill scale, and similar cleaning operations.

HYDRAULIC POWER TOOLS

The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed.

The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters, and other fittings must not be exceeded.

Employees engaged in the Construction of electric transmissions and distribution lines are required to use hydraulic tools that contain an insulating oil and non-conducting hoses. The "insulating type" means a fluid that will not conduct electricity; "non-conducting" means a hose meeting the requirements of the American National Standards Institute (ANSI) J6.1-1950 (R1971) for rubber insulating line hose. The requirements for the use of insulating type fluids, and non-conducting hoses, is to protect an employee from electrocution by an accidental contact of the hose with an energized line.

Safety Factors

The Boston brand of hoses are manufactured and tested considering maximum surge pressure as the limit for working pressure. In other words, any pressure surges, spikes, or jumps cannot exceed that of the hose's maximum working pressure. Failure to select a hose that meets this criteria could lead to end blow-offs, hose leakage, and hose bursts. The result could be serious injury, death, or equipment damage.

Boston employs a **4:1 (burst:working) SAFETY FACTOR** to a **Chemical, Air, or Water** hose's burst pressure to ensure the customer's safety. This means that the burst pressure is a minimum of four times greater than the working pressure. Additionally, it may be reassuring to know that every length of Boston chemical transfer hose is pressure tested to 1-1/2 times its working pressure before it is packaged and shipped!

Boston employs a **10:1 (burst:working) SAFETY FACTOR** to a **Steam** hose's burst pressure. This means that the burst pressure is a minimum of ten times greater than the working pressure.

A few hoses deviate from these safety factors, including:

Contractors Water: 3:1 Safety Factor

Green Garden: 3:1 Safety Factor

Leader Water Discharge (Light Duty): 3:1 Safety Factor for product codes 43-0307-XX-XXXX.



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! *All hose carrying acetylene, oxygen, natural or manufactured fuel gas, or any gas or substance which may ignite or enter into combustion or be in any way harmful to employees, shall be inspected at the beginning of each shift. Defective hose shall be removed from service.*

Preventive, Periodic Maintenance Pays Off

All hoses wear eventually wear out. It is important to be mindful of and on the look-out for the hose that has deteriorated to the point where it can no longer provide safe service.

What to look for in a hose near the end of its useful life:

- * cover blisters or lumps.
- * cuts or gouges in the hose cover that expose the reinforcement.
- * leaks at the coupling ends or anywhere along the length of the hose.
- * flattened or kinked areas which have damaged the hose.
- * a reduction in flow indicating that the tube is swelling.

When any of these conditions occur, it is good safety sense to immediately remove the hose from service. Once removed, the hose can be carefully inspected before further use.

This information has been obtained from hose manufacturer catalogs and the OSHA web site:

<http://www.osha.gov>

This is provided as an introduction to the safe use of industrial hose, it may be subject to change without notice and may not include all current regulations. Central States Hose urges you to contact your safety manager, a safety consultant or OSHA field office to ensure that your operation meets all safety requirements.

! Use of a damaged hose assembly can result in serious personal injury and property damage.