



## *Blown Away*

## *How Compressed Air Risks Lives*



### **Introduction**

Compressed air is one of the most important energy forms used in industry today, its use is widespread and as with many things that are in plain sight, the risks of compressed air injuring people and damaging plant are often grossly underestimated. Compressed air is not "just air". It's a focused stream of air driven at a high velocity, which can cause serious injury or death to its operator or persons in the immediate area, so knowing your responsibilities to mitigate these risks is essential.



## Corporate duty of care

Since the Workplace Health and Safety Act# (WHS) commenced in January 2012, ISO 18001 (soon to be replaced by ISO 45001) it's essential that businesses comply with their duty of care towards WHS. Put simply, the Act requires businesses and their officers to take all reasonable, practical measures to minimise or eliminate WHS risks to workers and other people at a place of business including customers. This includes actions such as installing safety devices or implementing safe work policies, procedures and training to mitigate risks. Penalties can be onerous to both the business and individual decision makers, not to mention increased insurance and workers compensation costs.

Occupational health and safety is a priority across the world as the consequences can be devastating and accidents within the workplace continue to happen. From the early 1990s a number of parties from diverse geographical and economic regions voiced their concerns about occupational health and safety systems across the globe.

The following statistics on health and safety accidents and their related costs – shows why:

**2.2 million** Workers lose their lives globally every year due to work-related accidents and diseases<sup>1</sup>

**Over 4.1 million** US workers suffer serious illness or injury every year<sup>1</sup>

**26.4 million** UK working days were lost due to work related illnesses and workplace injuries<sup>2</sup>

**4%** of the world's GNP is lost due to work related accidents and diseases<sup>3</sup>

**6,300** workers die every day as a result of occupational accidents or work-related diseases<sup>4</sup>

### References

1 – US Department of Labor Report 2013

2 – UK Health & Safety Executive Report 2010/11

3 – Global and Asian trends for Safety and Health at Work 2006

4 – ILO statistics

These statistics prove that there's an immediate need for organizations around the globe to improve their health and safety management systems – and this need will only grow in the future. As globalization escalates, more consumers and customers expect organizations to be ethical in every aspect of their business, including the way they treat their employees. In recent years the media has exposed a number of organizations' malpractices, leading to a significant negative impact on their brands and the loss of confidence in their business.

The standards enable companies to comply with regulatory requirements, including accountability, ethical and corporate governance specifications, as well as practice audits.

In particular the announced new ISO 45001 (2016) will also have a direct impact on society. With more internationally recognized occupational health and safety systems in place, the number of incidents and accidents will decrease, with less disruption to operational processes. This means fewer emergency treatments at the workplace and hospitals, less people being removed from sites and reduced long term care for those who are unable to return to work following an accident.

More and more companies also want detailed information about their suppliers' occupational health and safety practices to protect their brands. This motivates suppliers to implement better and internationally recognized systems to establish good health and safety practices. Third party certification helps to demonstrate that a business is meeting its requirements effectively whilst the process of achieving and maintaining certification helps ensure that it is continually improving across all areas of the organization.

## Health and safety risk assessments

***The law requires that companies assess and manage the health and safety risks of their business.***

A risk assessment is simply a careful examination of what, in your work, could cause harm to people. It means you can weigh up if you have taken enough precautions, or if you should do more to prevent harm. You must act on the findings of your risk assessment, by putting sensible controls in place to prevent accidents and ill health and making sure they are followed.

**Health and safety at work is about sensible, proportionate actions that protect people!**



### Compressed air dangers

With so many WHS issues to consider, compressed air might not seem a high priority, but it is a serious, life threatening hazard that deserves critical attention - especially as many people don't realise how dangerous compressed air is. Compressed air creates four main hazards, some of them deadly.

**Air pressure** - Air under high pressure can penetrate the skin, causing lacerations and embolisms, or damaging sensitive tissue such as the eyes or ear drums. Pressure as low as 12psi can rupture an eyeball.

**Noise** - Compressed air can reach or exceed 120 decibels, which is equivalent to a jet plane, causing WHS noise pollution issues.

**Particles** - Air at 40psi can drive particles into the eyes and face with the force of shrapnel, causing cuts and bruises to other parts of the body.

**Whiplash.** When a pressurised air line bursts, or a hose coupling inadvertently releases, a whiplash results in a thrashing hose becoming a dangerous projectile. If air tools are attached, or the line is a large diameter, the dangers increase dramatically. There are documented cases of severe injuries and death caused by high velocity, thrashing air hoses striking people.

## Whiplash – the forgotten issue

Given that severe injuries and death may result, it is surprising that whiplash risk is often overlooked in the workplace. Whiplash occurs when;

- ✓ the pressure exceeds the hose rating, or
- ✓ a hose is suddenly severed, or
- ✓ a hose coupling inadvertently releases while the hose is still under pressure

A hose connected to the compressor or main air line is still under pressure and will violently whip until the air pressure reduces. A violently thrashing air hose becomes a projectile and is extremely dangerous and can strike people or equipment with considerable force, causing injury or death, or resulting in damage to plant and causing production downtime.



### Whiplash deaths and injuries...

- ⇒ A NZ road worker died from massive head injuries after an air hose burst and struck his head. Death occurred despite him wearing a hard hat\*
- ⇒ A NSW miner died after a 250psi air hose became kinked and burst, striking the miner†
- ⇒ A QLD worker died after being struck in the head after an unsecured air hose blew off its fittings‡

## Where danger lurks!



## Solution

Avoiding hose whiplash can be achieved through:

- ✓ **Installing an Air Safety Fuse** - A Safety Fuse that eliminates whiplash and guards against accidental puncture or unforeseen maintenance issues.
- ✓ **Preventative maintenance** - Regularly check air hoses for weak spots at bent or kinked areas and at nozzle and shutoff valve attachments. If you notice these problems, replace the hose immediately!
- ✓ **Hazard reduction** - Minimize hose burst risk by avoiding contact between sharp or heavy objects and compressed air lines. Ensure that plant or machinery is not placed onto or driven over the air hose.

## Compressed Air Safety Fuses - [HoseGuard®](#)



Compressed air safety fuses protect people in your workplace from sudden hose burst and whiplash. When a hose bursts, an air safety fuse such as [HoseGuard®](#) by Protect-Air® instantly triggers an internal piston to safely reduce the air flow, allowing the air line to equalise and prevent whiplash. Importantly, during normal operations the tamper proof, preset pressure setting of an industry best fuse like HoseGuard® allows normal air consumption in your air tools, meaning there is no need for manual set-up.

HoseGuard features an integral bleed hole to allow a small volume of air to continue flowing in the line. Once the break is repaired and normal air pressure returned, HoseGuard® resets itself. This reduces down time compared to inferior fuses that must be manually reset.

**[HoseGuard®'s](#) patented design is a simple, cost effective safety solution for a wide range of compressed air applications. It can be fitted quickly and easily, with no adjustment necessary and provides reliable, tamperproof protection to both people and plant.**

Installing a HoseGuard® safety fuse reduces the risk of injury or death and enables your business to comply with your legal obligations under the WHS Act and other legislations and standards.

Protect-Air® assist the occupational health and safety professional by providing the products for Working place Health & Safety requirements.

Protect-Air® is offering a full range of approved modular safety Products that include Air fuses, In-line pre-set regulators and many more.

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