

## Working with High Pressure Hydraulic Hoses

An employee was using a portable high pressure hydraulic pump to power a hydraulic ram to push links apart on a track chain. The hose-tail failed at the hose tail crimp, whipping back striking the employee on the left eye. Despite wearing safety glasses, the employee lost sight in the left eye.

High Pressure hydraulic hoses can be operated up to 10,000 PSI (700 bar), and hazards include impact or projectiles, oil injection under the skin - leading to skin infection, tissue damage or amputation. Work activities need to be reviewed to assess the effectiveness of controls following an incident.



Figure 1: Hydraulic pump and hydraulic ram, with the failure occurring at the crimp of the hose tail. The safety glasses were found 3 meters from the operator, broken at the hinge

Following this incident, the following has been put in place:

- Full face shields and safety glasses or goggles (double eye protection) are to be worn for high impact potential activities. Goggles provide better protection than safety glasses for high impact activities. Face shields are not designed for high impact activities alone and require safety glasses/ goggles to be worn.
- Whip cords (hose chockers) certified for high pressure hydraulics, are used for all coupling joins. Ensure all hoses are visually inspected before use. Dispose of damaged hoses and couplings. The whip cords were sourced through Enerpac.
- Ensure all high pressure hydraulic hoses are sheathed to protect from abrasions, and provide protection in-case of failure, and hydraulic injection.
- The employee's place of work arranged training workshop for staff and local businesses on the safe use of high pressure hydraulics tools.

### Safety tips:

- **Ensure operators are trained in good handling practices when using high pressure hydraulics.**
- **Lift slowly and check often. Ensure work is done on stable, flat surfaces.**
- **Avoid standing in the line of fire. Ensure the hoses do not kink and have a supported arc. The bending radius must be greater than 115mm.**
- **Anticipate possible problems and take steps to avoid them.**
- **Inspect tools regularly. Replace damaged equipment immediately.**

- Hydraulic hoses have a maximum 6-year life span with visual inspections conducted regularly to ascertain any visible damage to the hoses. This is highly dependent on the work environment – and for some work environments it will be less.
- Always read instruction and safety warnings.
- Never lift or carry hydraulic equipment by the hose or hose couplings.
- Wear gloves rated for use with hydraulics.
- Avoid putting force on coupling parts when applying pressure.
- Use double eye protection (face shield and safety glasses).



Figure 2: Certified high-pressure whip cords/hose chokers are used on all coupling connections.

Let's work together to keep ourselves and our workers safe.

18 May 2018