

# Work health and safety considerations when selecting chain tensioning devices

Load restraint devices to tension chains are commonly used in the transport industry. It is now accepted that over-centre type load tensioning devices ('dogs'), which are often used with an extension handle or bar ('cheater bar') create a risk of serious injury. Many businesses have either changed over to or are moving towards using alternative ways to safely secure loads on trucks.

Workplace Health and Safety Queensland (WHSQ) commissioned research into musculoskeletal disorders (MSD) and impact risks associated with in-line chain tensioning devices.

Musculoskeletal disorders (MSD) are those injuries which are often referred to as sprains and strains. Impact injuries, in the case of load restraint devices, often occur as a result of a bar kicking back and striking a worker.

As a result of the research conducted, businesses should consider the following design features when selecting chain tensioning devices to minimise the risk of such injuries.

Where practicable, and in general, the tensioning device should:

- have pneumatic, hydraulic or electric operation to decrease the force needed to operate it or if manually operated, it should not require workers to apply high force
- be truck-mounted below the tray, or if freestanding, be able to be operated with hands between shoulder and waist height to minimise awkward postures and be able to be operated from ground level without the need for a step to avoid a slip, trip or fall risk
- have tension indicators so that the worker can see that the required tension has been reached
- not have a handle which can be accelerated to high speeds when releasing the device, to eliminate the risk of an impact injury from handle or load
- not allow sudden and uncontrolled release of the load.

Where in-line chain tensioners are used, the device should:

- weigh less than 5 kg
- be pulled down (not pushed up) to tension
- only require a maximum force of 30 kg to tension (less if achievable)
- not be able to be fitted with an extension bar or handle (as this encourages over tensioning)
- have a handle which allows for a worker's wrist to be in a neutral (handshake) posture and be operated using two hands
- have a handle which allows for re-tensioning without removing and reattaching it to the device.

For practicality, the device should be easy to operate with minimal training, allow for loose chain or webbing to be quickly hand tensioned prior to mechanical tensioning, allow shortening in small amounts (less than 5 mm) for each click of the mechanism and contain a pre-tension indicator.

The device should also be robust, affordable, able to be used in a wide variety of applications and be easy to inspect and maintain.

### **Further information**

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