WORKSAFE NEW ZEALAND | MAHI HAUMARU AOTEAROA

FACT SHEET

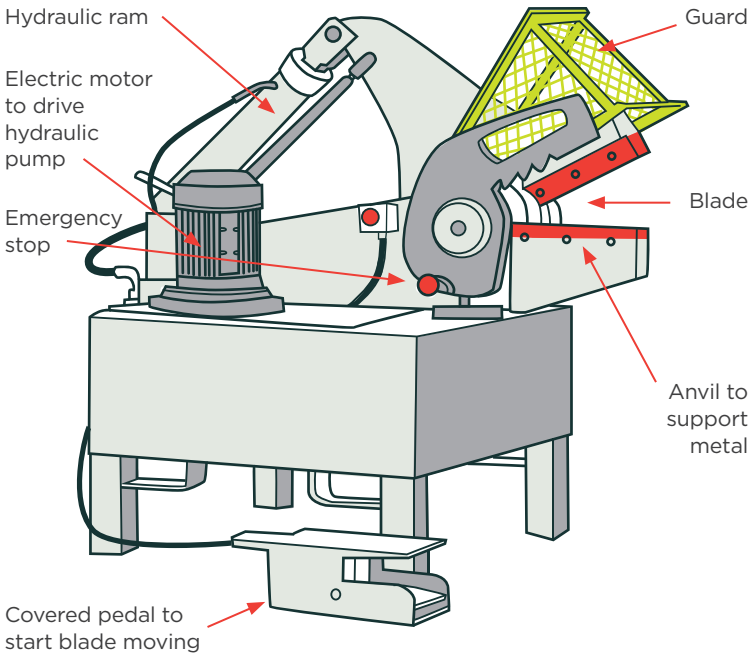
METAL CUTTING SHEARS

Metal cutting shears are used for cutting scrap metal to a suitable size for handling and transport to a metal recovery operation. Sometimes they are constructed as an alligator shear or a shearing and baling press. In a shearing and baling press, the closing lid forms a shear with the side of the baling press.

Usually, the cut off piece will fall into the baling press, or be collected in a bin placed near an alligator shear.

The blade starts at one side of the metal placed on the anvil, similar to the action of scissors. Some shears are integrated with a press to form cut metal into blocks, and those blocks are often sized for placing into a furnace for recycling.

FIGURE 1: METAL CUTTING SHEARS



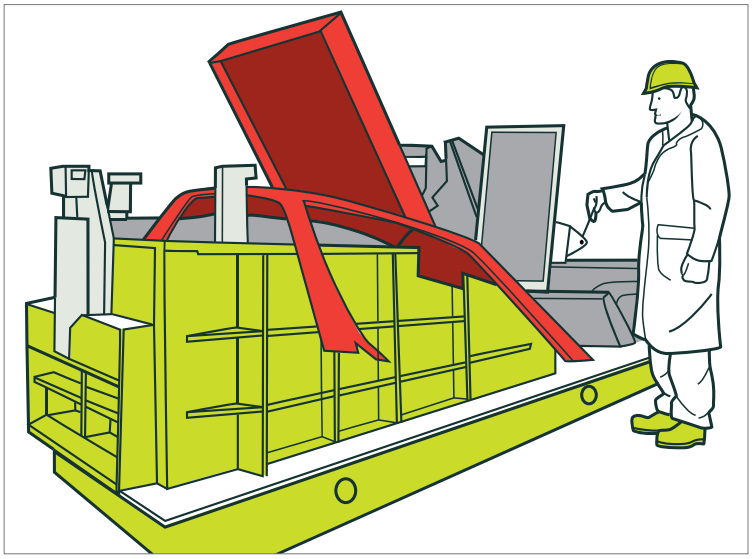
HAZARDS:

- Contact with scrap metal
- Entrapment from moving parts
- Entrapment from contact with blades and bending metal
- Contact, impact or entrapment from moving parts/unwanted movement
- Noise
- Leaking hydraulic hoses
- Slips, trips and falls
- Entrapment or impact from unexpected movement (during maintenance, cleaning & repairs)

PPE:

WSNZ_00011.26_APR14

FIGURE 2: METAL CUTTING SHEARING AND BALING PRESS



TASK – LOAD & UNLOAD

Hazard	Harm	Controls
Contact with scrap metal	> Cuts > Eye irritation or damage	> Scrap metal MUST be collected without a need to reach into the shears or any related press. > WEAR eye protection.

Sharp edges may cut. Scrap metal with a brittle coating is likely to spray hard chips of coating material as it is cut.

Entrapment from moving parts	> Trapped hands or fingers	> ISOLATE point of closure at the clamp and blade using distance guards and a method to secure the metal.

TASK – MAKE THE CUT

Hazard	Harm	Controls
Entrapment from contact with blades and bending metal	> Deep cuts or amputation of fingers or hands	> DEFINE a “no go” area. Hands MUST be prevented from reaching beneath blades. > PLACE a distance table to minimise the chance of reaching to the blade, and to support metal while it’s cut. > When it’s not possible to use a clamp to hold metal, SET vertical metal stops in the fixed part of the shear or anvil, close to the cut. > The operator MUST control any blades they can directly reach.

Metal cutting shears usually have mechanical or hydraulic prime movers. Energy for the blade in hydraulic shears comes from pressure in a hydraulic ram – hydraulic oil flowing into the ram controls the tool movement and speed. Hands can be trapped when metal bends as it is sheared.

Contact, impact or entrapment from moving parts/ unwanted movement	> Crush injuries > Bruising > Fractures	> FIX a distance guard to prevent reaching into moving parts. > PROVIDE support for metal parts that may fall and cause injury. > If there is a chance that shears may fall, the raised lid MUST be chocked while people reach beneath it. > COVER any pedals to minimise the chance of an unintentional start. > ISOLATE ALL hazards, including moving parts of the hydraulic ram, and access to any press working with the shears.

OTHER (NON-MECHANICAL) HAZARDS

Hazard	Harm	Controls
Noise	> Hearing damage or loss	> REDUCE noise levels by isolating machines or enclosing within noise barriers. > ASSESS noise levels. > ARRANGE hearing screenings. > ALWAYS WEAR hearing protection.

A safe noise level over an eight hour day is 85dB(A). Metal cutting shears may exceed this noise intensity.

Leaking hydraulic hoses	> Leakages may seep into skin > Hand pain > Tissue and muscle damage > Puncture wounds	> Leaking oil, or bulging or abraded hose walls, MUST have faulty parts replaced. > DO NOT use hands or fingers to detect hydraulic oil leaks. > If oil seeps onto anyone's skin, or someone working near hydraulic oil under pressure thinks they were bitten by an insect, they MUST be TAKEN to hospital, with full information presented to medical staff. > APPLY a programme preventive maintenance (hydraulic hoses and hydraulic hose couplings).

May leak with high pressure jets of oil.

Hydraulic oil under pressure will penetrate skin, even seeping through leather gloves.

Slips trips and falls	> Potential for hands to be trapped > Cuts > Bruising	> KEEP up-to-date housekeeping procedures. > KEEP the area around shears clear of slip and trip hazards.

WORKSAFE
NEW ZEALAND | MAHI HAUMARU AOTEAROA

TASK – MAINTENANCE, CLEANING & REPAIRS

Hazard	Harm	Controls
Entrapment or impact from unexpected movement	> Cuts > Bruising > Fractures	> LOCK-OUT ALL power supplies before maintenance, cleaning and repairs. > PROVIDE support for metal parts that may fall and cause injury. > KEEP written safety procedures. > ARRANGE regular inspections by a competent person. > REMOVE machines that fail inspection, and DO NOT USE until repaired or replaced. > When a shear is altered, a new hazard assessment MUST be performed, and safety improvements made.

References, current standards and further information can be found on the Safe Use of Machinery project page at: **www.worksafe.govt.nz**

PUBLISHED: APRIL 2014. CURRENT UNTIL REVIEW IN 2017