Copper pipework

Hand tools

When fabricating copper pipe, it is very important to be able to identify and use the correct tools properly.

It is also important to be able to maintain the tools in good condition so they last for a long time and are ready to be used whenever needed.

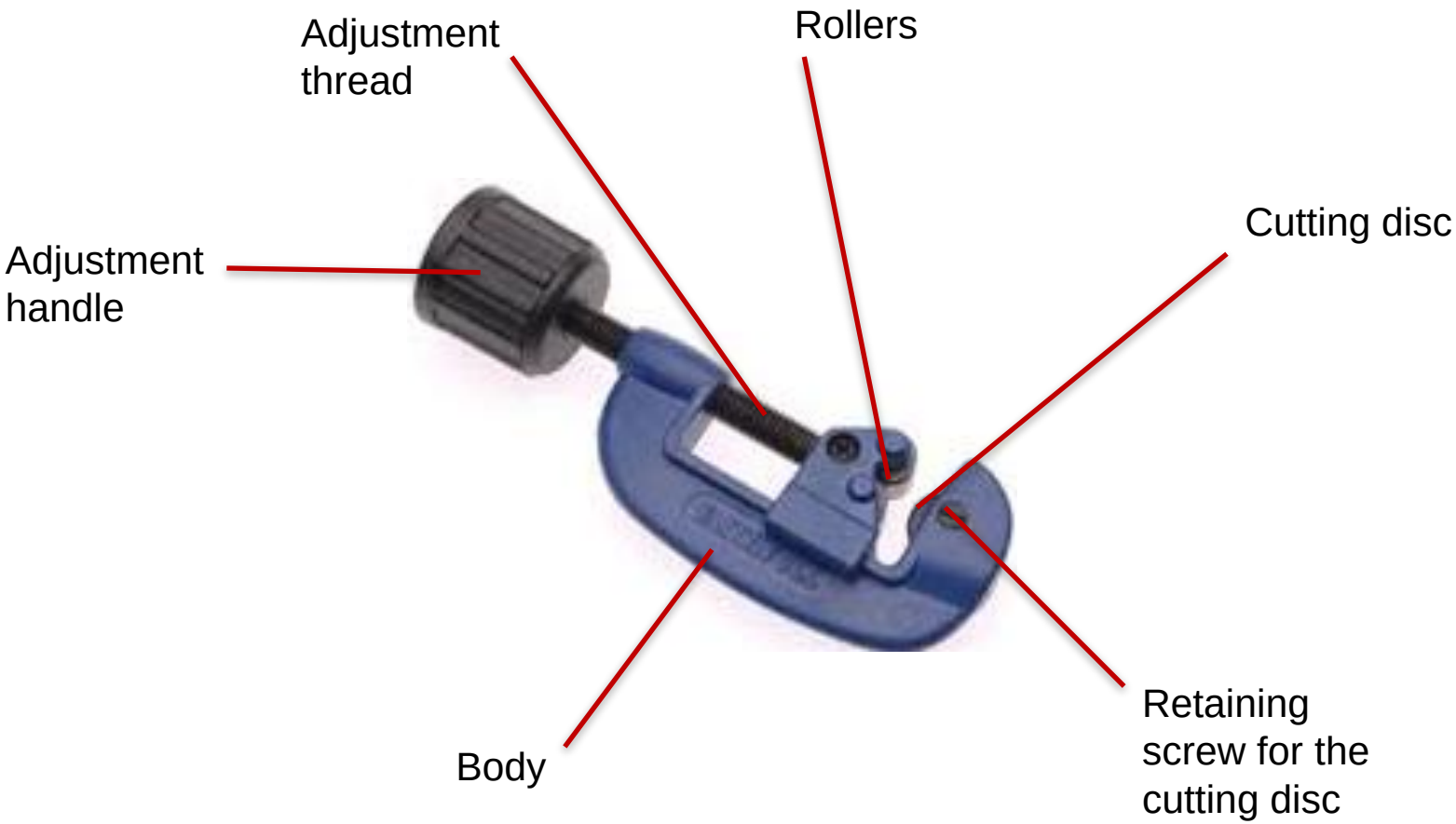
Hand tools

Pipe cutter

This is a manually adjusted tool that is able to cut a range of copper pipe sizes.

The handle is turned either clockwise or anti-clockwise, which opens and closes the rollers.

Hand tools



Hand tools

Pipe cutter

When the copper pipe is placed in position correctly, the rollers will hold the pipe against the cutting disc. The cutter can then be rotated around the copper pipe, maintaining a single groove. The adjustment handle is tightened slightly after every second turn until the cutting wheel breaks through the pipe.

After a period of time the cutting disc will need to be replaced. This can be done by loosening the retaining screw.

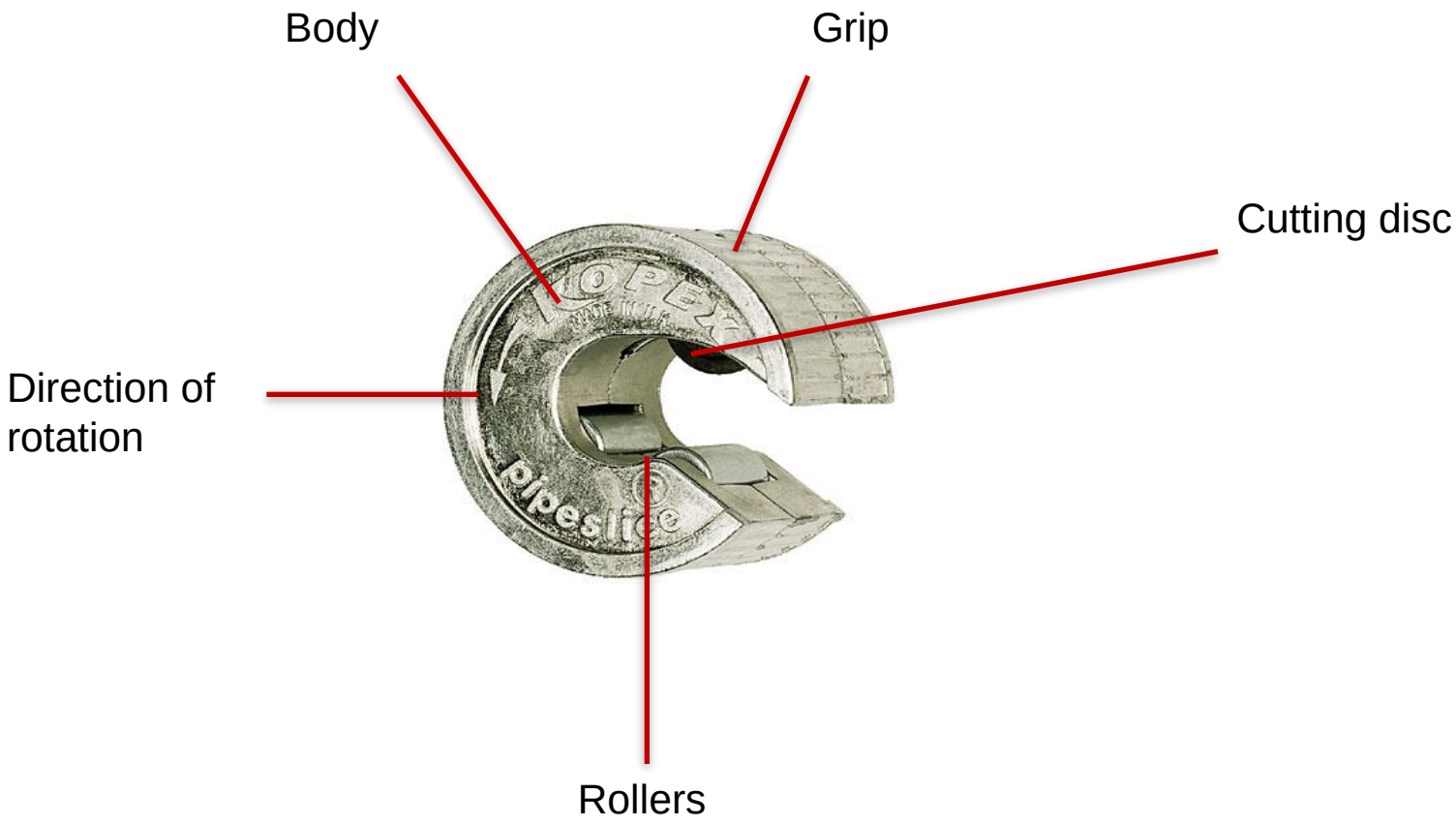
The adjustment thread will require lubricating regularly, which will allow free movement up and down the thread. The rollers will also need lubricating to allow them to rotate freely.

Hand tools

Pipe slice

This is an automatically adjusted tool that is able to cut a single size of copper pipe. This means that a plumber would need an individual cutter for 15mm, 22mm and 28mm copper pipe.

Hand tools



Hand tools

Pipe slice

The copper pipe is twisted into the jaw of the tool onto the rollers. The cutting disc is spring-loaded, and the tension between the rollers and the disc holds the cutter in position.

The tool is rotated in the direction of the arrow, which tensions the disc and allows it to start cutting. As the rotation continues the disc breaks through the copper pipe wall.

The cutting disc will need to be replaced after a while. This is done by loosening the screws holding the body together.

The rollers and cutting disc will require regular lubrication and cleaning to allow the free movement.

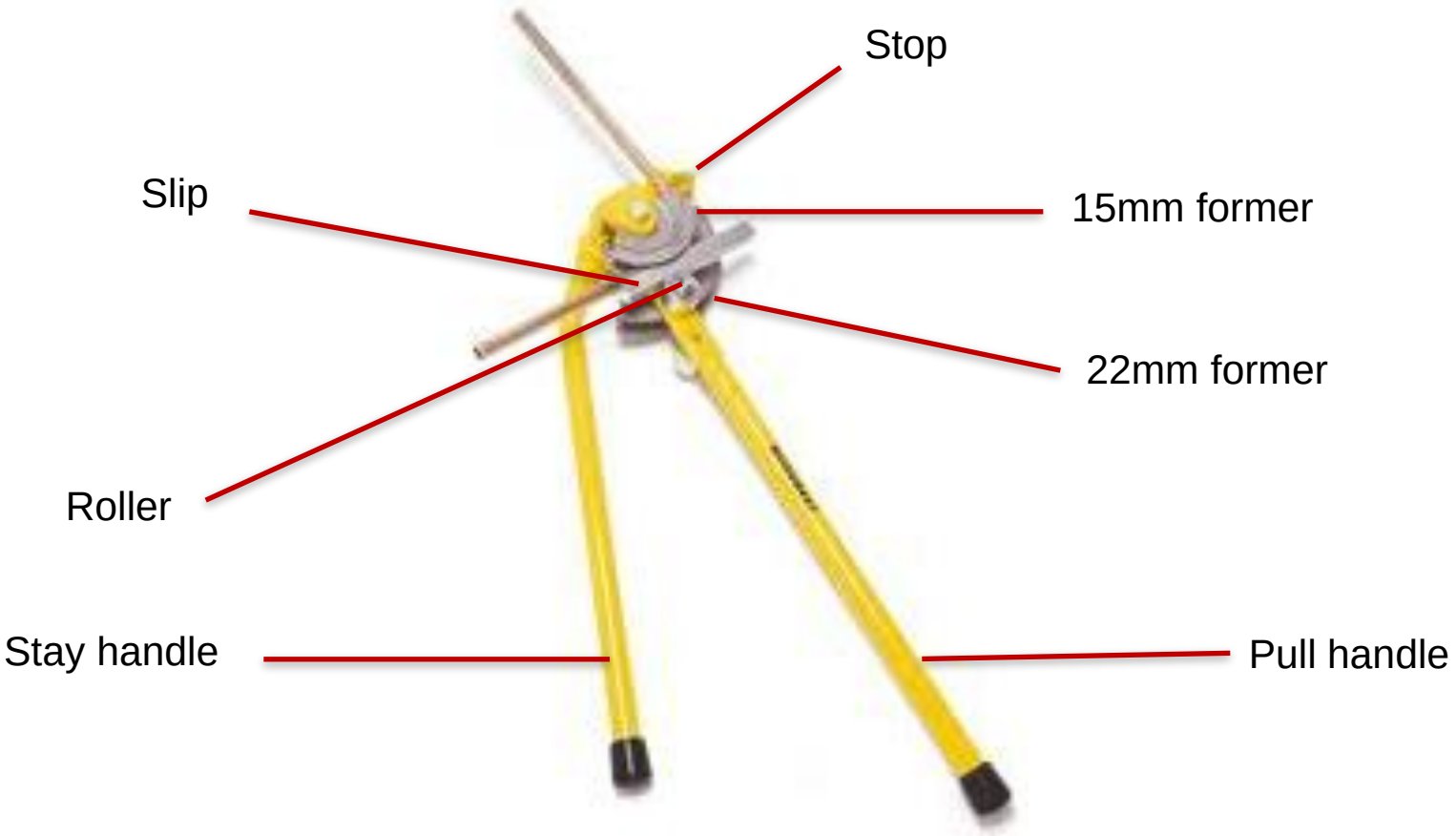
Hand tools

Scissor bender

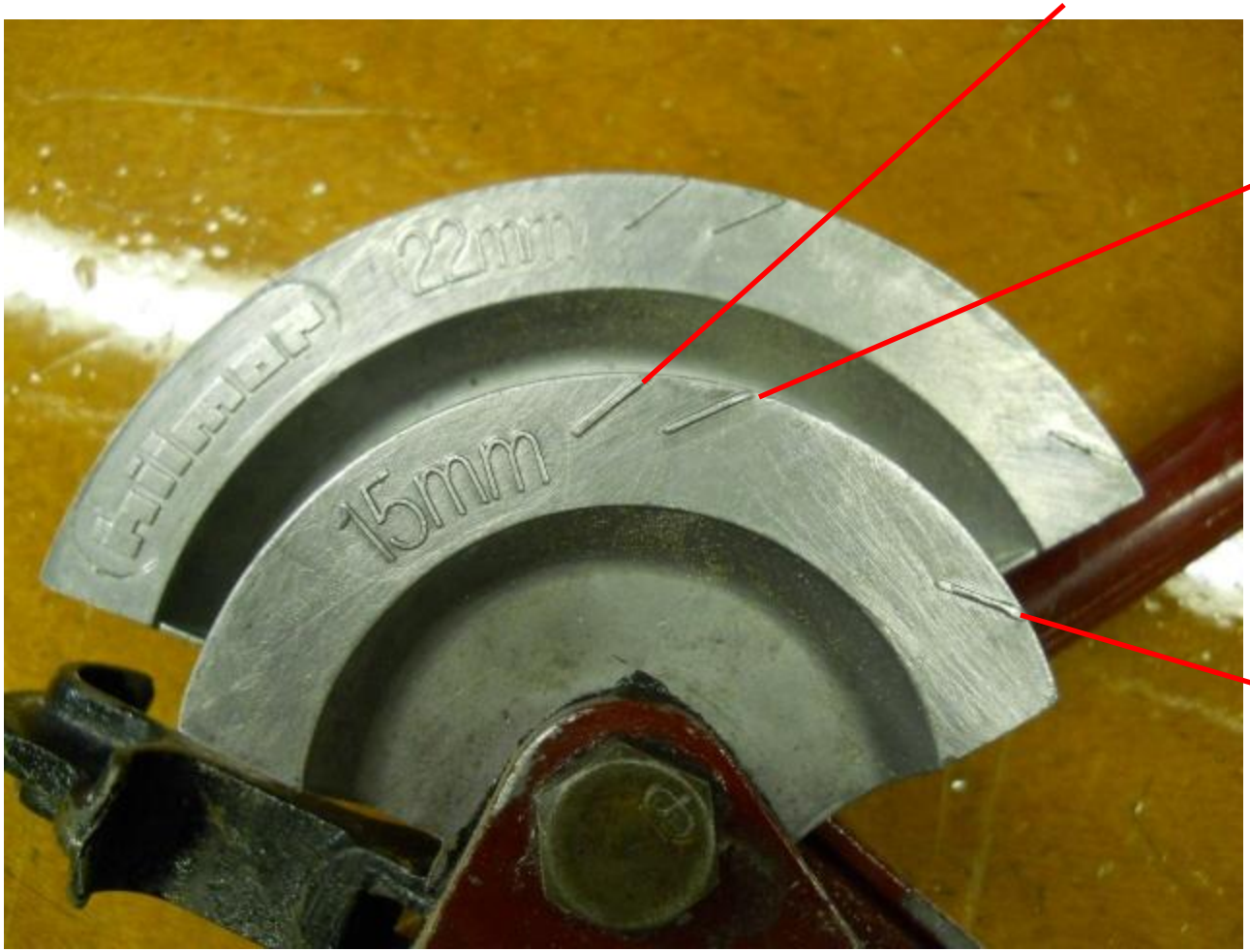
This is one of the main tools a plumber will use. It allows the shaping of 15mm and 22mm copper pipe and features two handles, two formers, two slips, one roller and a stop.

Used correctly it will form angles, sets, half pass-overs and full pass-overs.

Hand tools



Hand tools



Hand tools

Scissor bender

Named because of its scissor-like action, the bender is opened and the copper pipe is placed in the former and under the stop. The slip is placed on top of the pipe and below the roller. The stay handle is kept stationary and the pull handle is levered around. This causes the roller to move across the top of the slip and the pipe to move around the former to the required angle.

Like any tool, the scissor bender will require regular lubrication, cleaning and tightening. On occasions the slip may need replacing due to some damage to it.

A good-quality scissor bender should last a lifetime if used correctly and maintained well.

Hand tools

There are other types of scissor benders designed for use on copper pipes of different sizes.

Microbore scissor bender

- Used for 6, 8 and 10mm copper pipe

Stand scissor bender

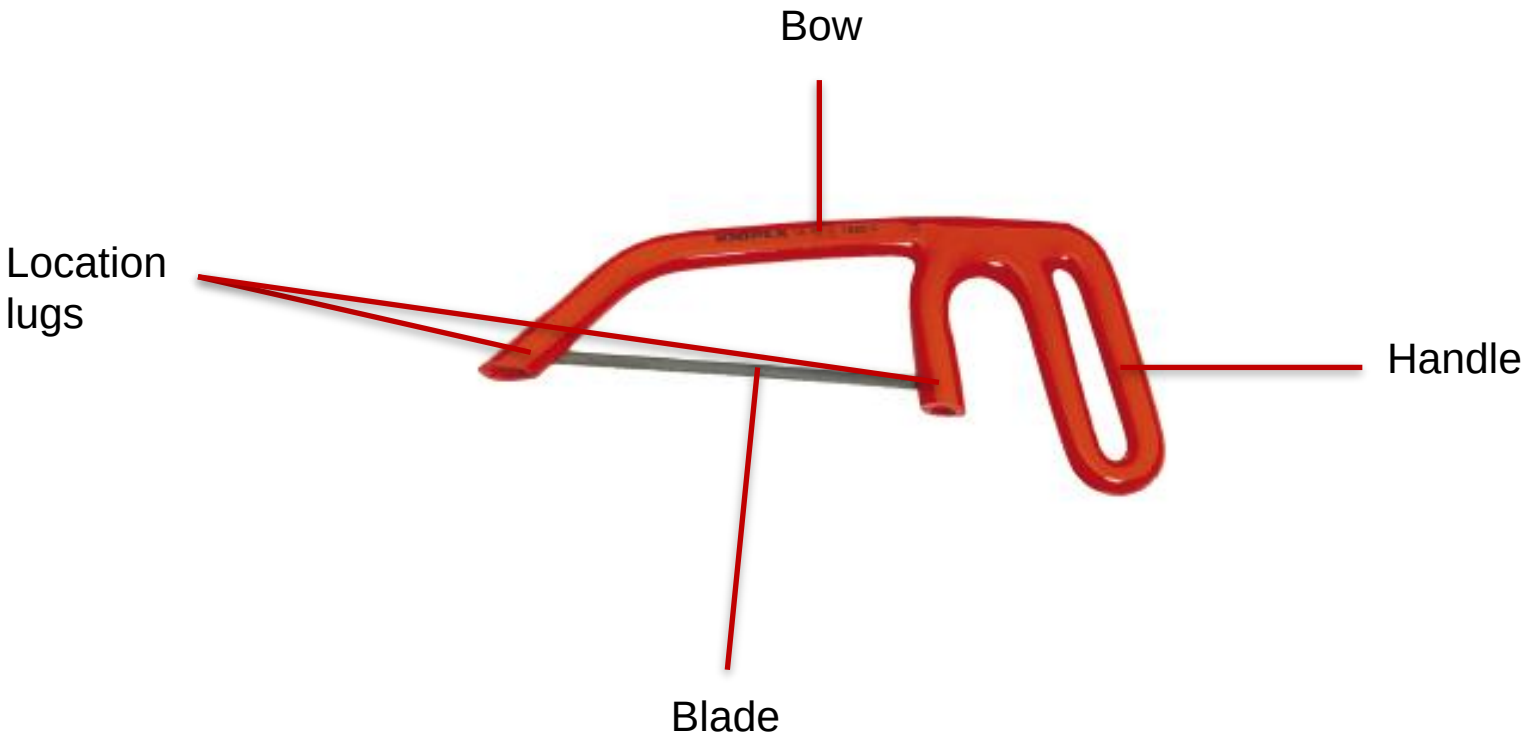
- Used for 22, 28 and 35mm copper pipe

Hand tools

Junior hacksaw

This is an essential saw for a plumber. It is used to cut small pipework, generally up to 22mm. It is useful for cutting pipe when in situ, where access is difficult or removal too costly.

Hand tools



Hand tools

Junior hacksaw

The blade is held in place between two locating lugs. The tension of the blade is held by the frame of the hacksaw being spring-loaded.

From time to time the blade will need replacing between the lugs. Care must be taken to ensure the teeth are facing forwards to allow the cutting action to take place on the forwards motion.

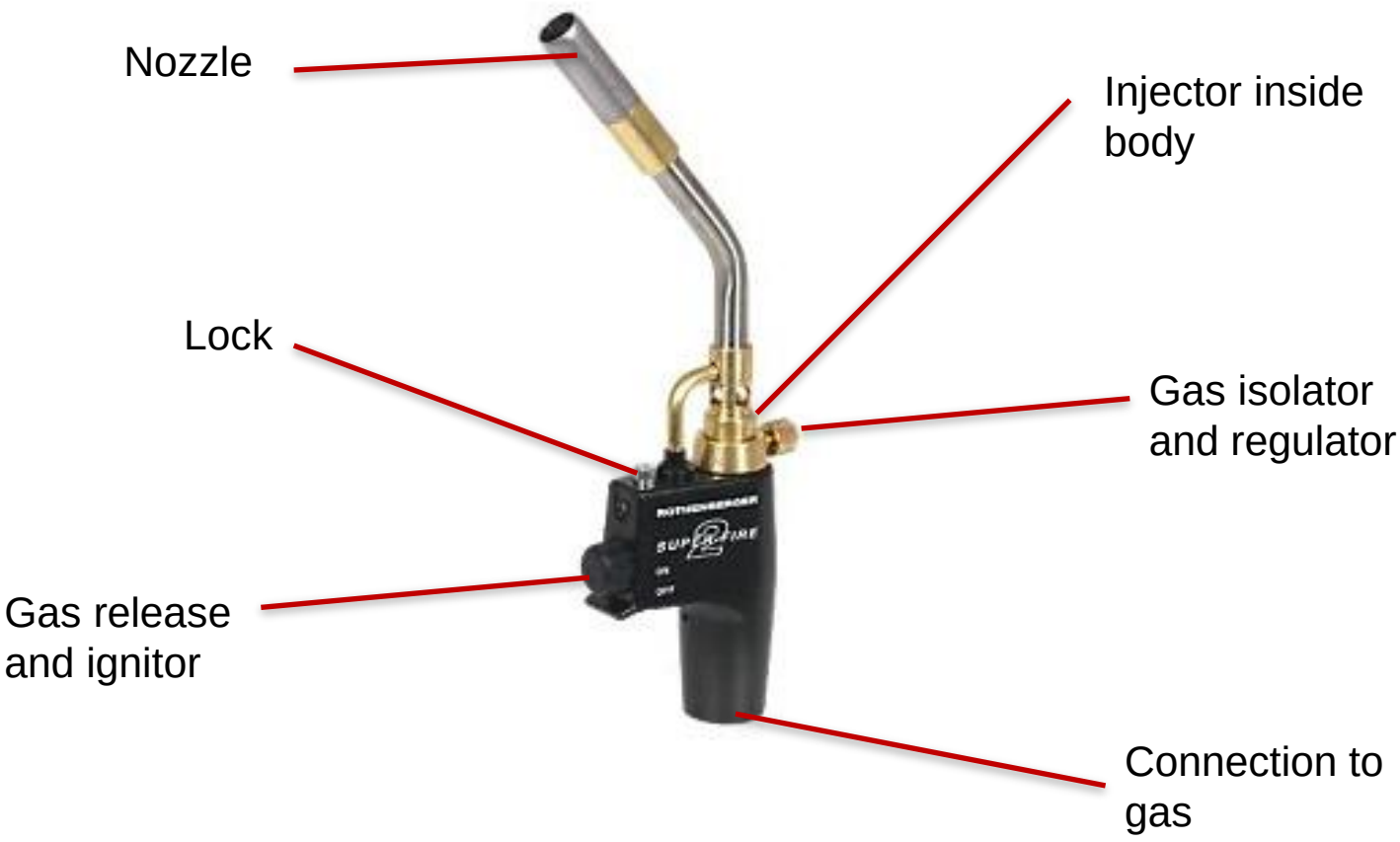
Hand tools

Blowtorch

The blowtorch is the part of the LPG equipment that controls the size of the flame when soldering. They can either be self-igniting or require an ignition source.

Blowtorches have an isolator and gas regulator to control the size and heat of the flame. They are handheld and caution needs to be taken because the nozzle will be hot after use.

Hand tools



Hand tools

Blowtorch

The blowtorch is a specialist piece of equipment that requires a higher degree of maintenance:

- The nozzle and injector will require cleaning from time to time to remove any debris.
- The ignitor may require changing if it fails to spark.
- The rubber seal on the gas connection will require inspection to ensure that it is gas-tight seal.

Hand tools

Adjustable spanner

It is a general-purpose tool, used for tightening or loosening nuts. Any nut (flat-sided) should be adjusted by using a spanner and not grips. The head is shaped to be positioned on the nut one way, so the force from the handle is in the correct direction and slip is minimised.

Hand tools

Adjustable spanner

These tools will require regular lubrication on the moving worm and jaw. This is mainly due to the spanner being made from forged steel, which will rust if left damp after use.

Hand tools

Hazards

As with the use of any tool, always assess the risks and hazards presented by the tools we have looked at:

- Cuts from sharp edges
- Burns from hot components
- Flammable materials
- Trapping fingers

Hand tools

Hazards

If there are any cutting edges, make sure they are kept sharp, but keep your fingers away from them. Sometimes the use of gloves may be required to protect your hands.

Once a fitting has been soldered be aware of the remaining heat in the joint as well as the blow torch. The heat can burn you or damage property. Gloves can protect your hands and a solder mat can protect the property.

Hand tools

Hazards

LPG is extremely flammable, so care is needed when using, transporting and storing it. Do not solder near to combustible materials and always have the correct fire extinguisher near by. Always protect your eyes when soldering.

Hand tools

Hazards

Trapping your fingers in a tool or against an object can be very painful. Take care when using the scissor benders not to trap your fingers. Adjust the spanner to the correct size to avoid it slipping off and hitting your fingers.