

User guide for “Squeezing - Off a PE pipe”

Important: This guide is given as an "illustration only" of the equipment being used, and locally enforced operating procedures should always be used.

When a repair to a gas or water pipe is required, but its location is remote from valves or where it would be too expensive to empty the pipe, the flow can be arrested by using squeeze off tools. This method was developed by the UK gas industry in the early 1980s.

Tools are available from 16mm up to 180mm. Hydraulic jacks are used to provide the required force to compress pipes above 125mm, manual tools are used below 125mm.

Built-in rotatable "check plates" protect the pipe from being damaged by over compression. These plates comply with the Transco standards and restrict the gap to 80% of twice the wall thickness. i.e. the tool will squeeze down until the pipe walls touch, then a further 10% of the thickness of the wall.

For example, a 90mm SDR11 pipe will have a nominal wall thickness of 8.18mm, so the squeeze gap will be restricted to 13mm.

The squeeze off tool comprises two parallel bars that apply pressure to the outsides of the pipe. The bars are moved together manually or hydraulically, squeezing the pipe material until a seal is formed where the upper and lower walls meet.

Where the pipe wall is compressed the PE pipe will be severely deformed. In the areas of maximum compression, PE100 pipe will discolour due to stress whitening.

The pipe will eventually regain its original shape after the squeeze off tool has been released, but to speed up this process rerounding tools are available.

- There will be some reduction in the pipe's pressure bearing properties in the area that has been squeezed.
- The procedure must not be carried out within three pipe diameters of a fitting, a fusion joint or a previous squeeze off operation.
- After squeezing off, the pipe must be inspected and if there are any signs of damage (splitting or cracking) the pipe should be renewed.
- The area of pipe squeezed should be marked as having been squeezed off.

Tests which have been carried out by independent test laboratories have indicated that satisfactory long term performance can be achieved on previously squeezed off and rerounded pipes of various wall thicknesses.

Individual gas companies may limit the maximum diameter of pipe that can be squeezed off and may require the use of stainless steel reinforcement bands above certain diameters.

Some locally enforced operating procedures require the use of squeeze off tools in pairs - A primary and secondary, backup tool. This will require four tools to be used to repair a break in a pipe.