

# Leak Sizer<sup>®</sup>

Digital ground microphone for leak prioritising repairs

**Leak Sizer** is an advanced instrument for leak location and for the determination of leak size probability.

- Prioritise repairs to reduce leakage losses
- Reduce repair costs
- High sensitivity with 24-bit digitisation to detect quiet leaks
- Multi-position minimum noise level display
- Multiple leak noise sound recording
- Leak noise spectrum display and advanced filters
- Wireless leak noise transmission from ground sensor

## Methodology

Once the leak position has been determined then the **Leak Sizer** operation commences. The process is as follows:

- Collect 30 seconds of acoustic data from the ground surface immediately above the estimated leak position
- Enter estimate of network pressure
- Optionally collect 30 seconds of acoustic data from pipe fitting close to the leak such as a valve or stop tap

## Results

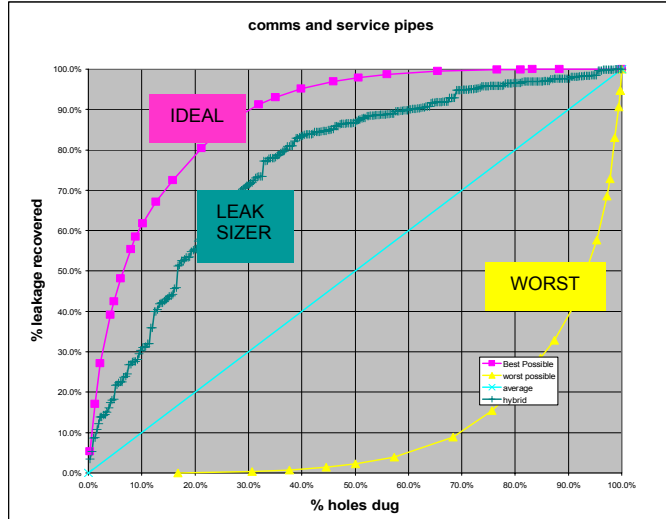
The algorithms within the **Leak Sizer** software then analyse this data to extract a range of key features which can be correlated probabilistically against leak size. The sizing process is divided into two categories; communication/services pipes (less than 50mm) and mains pipes (greater than 50mm). The leak size estimate probability is displayed in three categories for the smaller pipes and into two categories for the larger pipes.

**Research results show that 83% of water is saved by repairing 40% of leaks**



**Research data**

**Leak Sizer** is the result of over two years research carried out in the South West Water company in the UK. This research included measurement of over 370 actual leaks. A wide variety of pipe materials and soil types were assessed. The blue line on the graph shows average performance - what should happen if leaks are repaired in random order. The dark blue line shows the **Leak Sizer** performance and the pink line the theoretical ideal performance.



Results of research on 370 actual leaks

**Sensor characteristics**

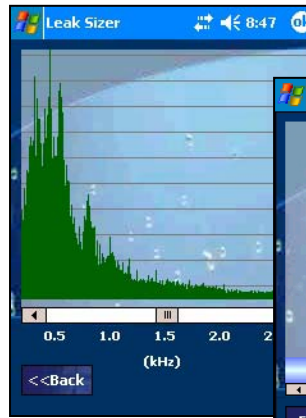
- High performance accelerometer
- Acoustic data digitised at accelerometer
- Bluetooth data transmission to PDA for data processing
- Battery life 40 hours (rechargeable)

**System components**

- Advanced ground sensor with Bluetooth® communications
- Large mass for constant acoustic coupling with ground surface (for leak sizing)
- Tripod attachment for surface listening (+ soft ground spike)
- PDA with rugged case + Leak Sizer software
- Connecting rods + handle
- High performance headphones



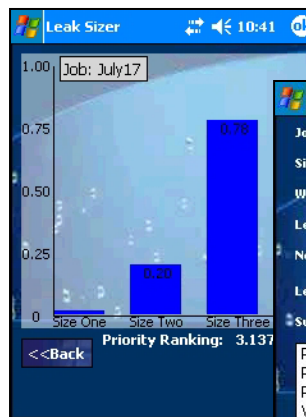
Leak Sizer use for direct leak listening



Leak noise spectrum display



Minimum noise level display



Leak size probability result



Site details