FIRE CATCH

Advancing Fire Suppression Maintenance With Ultrasonic Technology

FIRENDT

Presenter:

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Founder & Director

Defining the Issue

- **What's the Issue?**
  - Every day fire suppression piping is installed, tested, or decommissioned.
  - Technicians rely on plans and knowledge to select the right valve.
  - Quite often the block plan is misleading.
  - This can result in up to 2000kPa of water pressure released.
  - In short, this is a disaster.

Why Change is Needed

- **Challenges with Traditional Methods:**
  - Risk of pipe damage
  - Accidental flooding
  - High repair costs
  - Technician safety concerns
  - Reputation damage
  - Tenant inconvenience

Introducing Ultrasonics?

- **A non-invasive, non-destructive solution:**
  - Uses sound waves to detect pressure
  - No pipe penetration or head-wriggling required
  - Fast and reliable results
  - Can handle multiple sizes and environments

What's the Principle?

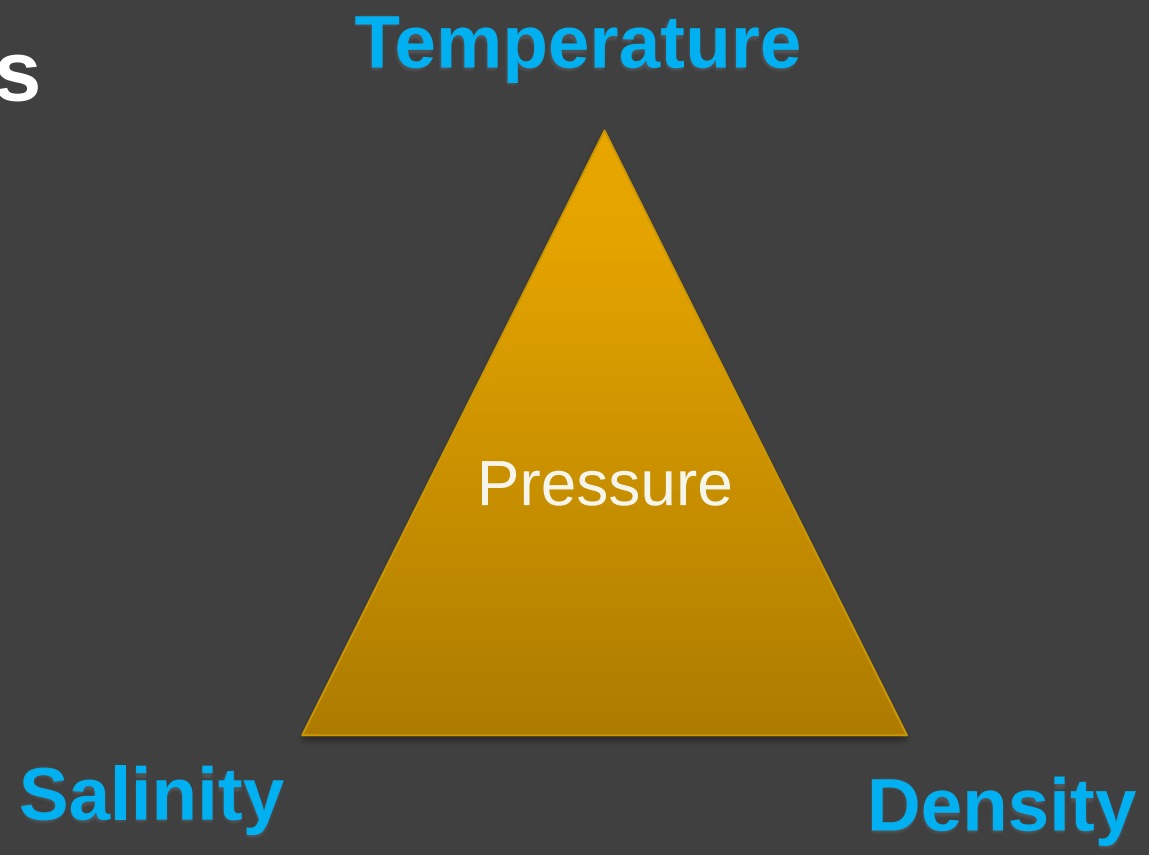
- **The Approach:**
  - The speed of sound changes depending on the medium
  - The speed of sound in water is pretty well known
  - However, pipes have a range of challenges when testing
  - How to overcome all of those obstacles?

Independently Validated

- **Theory needs independent verification:**
  - Can’t just be us that says it works
  - Backyard testing is one thing, but controlled lab is another
  - Verified by Deakin University
  - Proven in real-world field applications

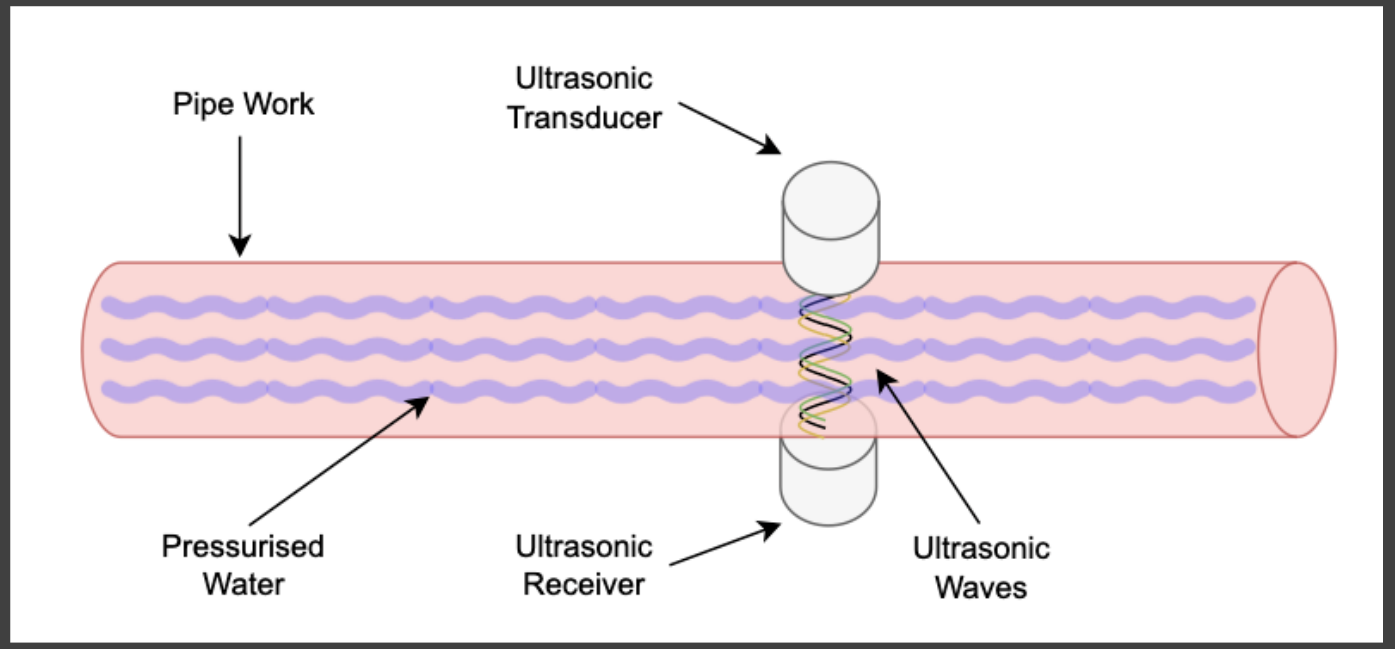
How Does It Work?

- **Three key variables**
  - Temperature
  - Salinity
  - Density



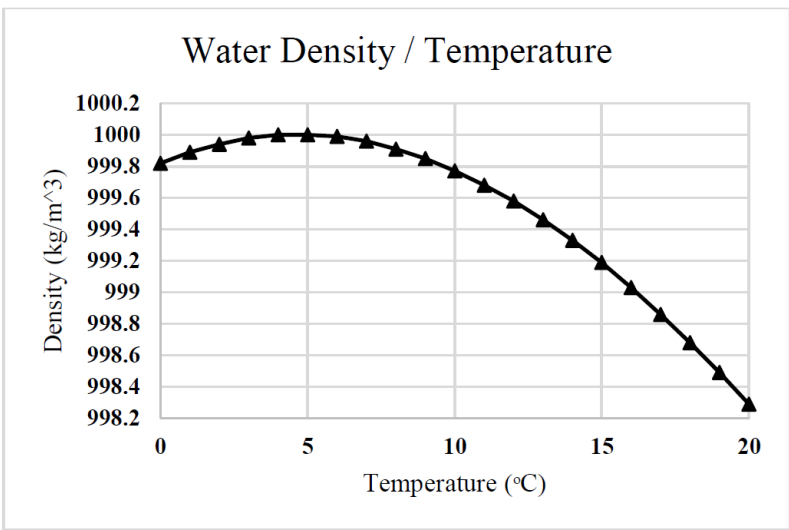
How Does It Work?

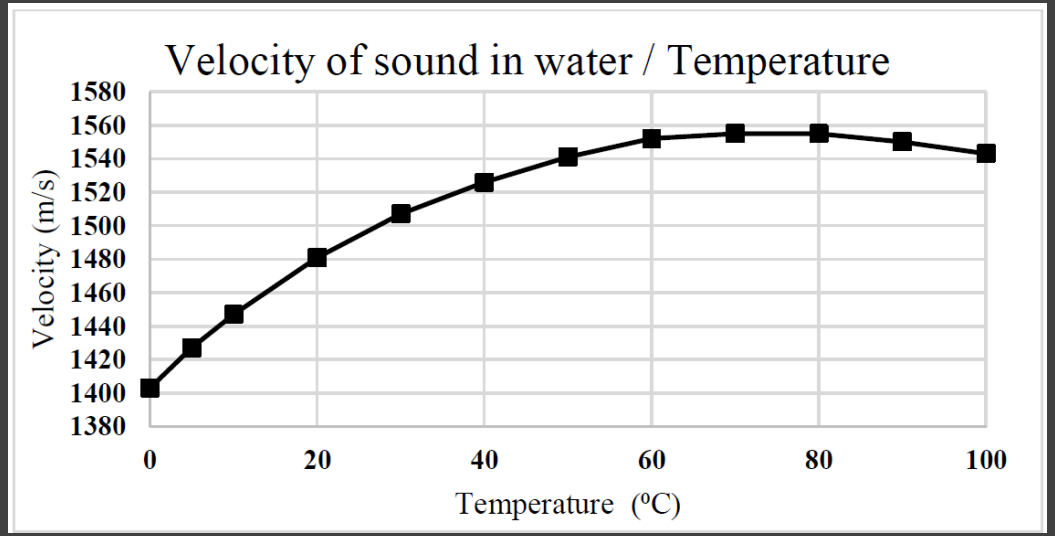
- **Setup**
  - We place probes either side of the water pipe
  - We then measure the sound waves across the pipe



How Does It Work?

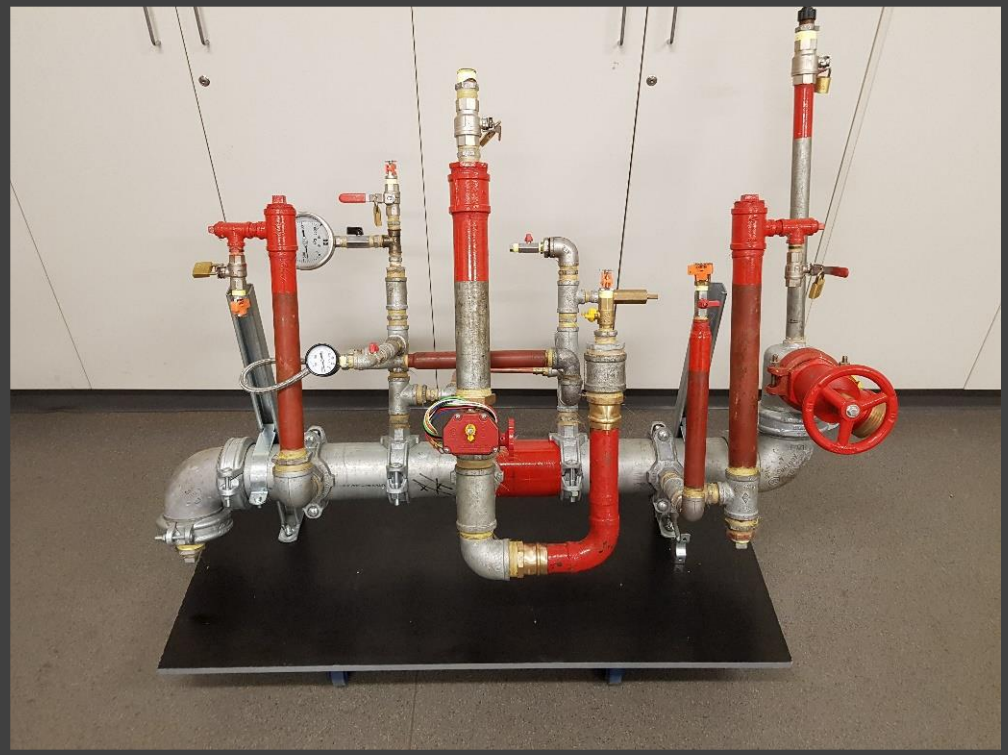
- **What happens with temperature?**
  - As temperature increases, density decreases
  - As temperature increases, the velocity increases
  - It's non-linear





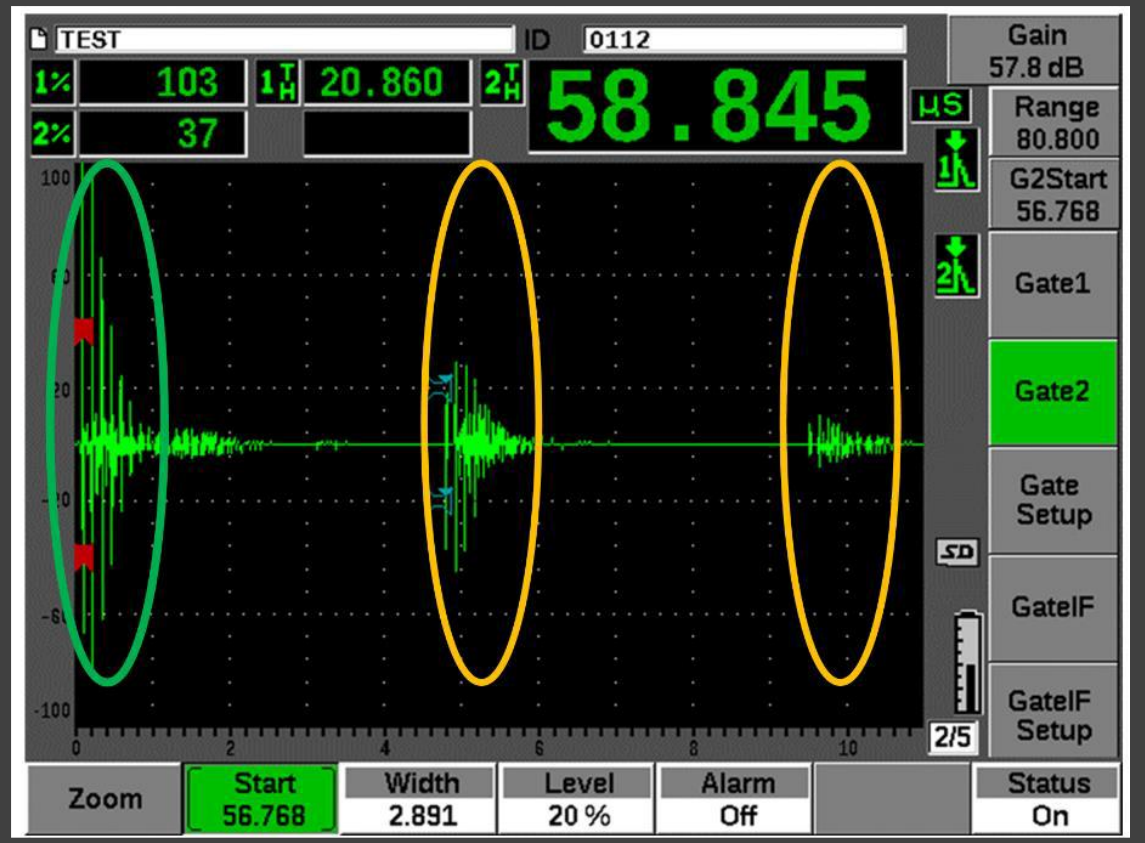
How Does It Work?

- **So we set up the experiment with Deakin**
  - Needed a test rig to use for experimenting
  - Multiple pipe sizes
  - Multiple configurations



How Does It Work?

- **What results did we get?**
  - Could see the peaks
  - Could see the back wall
  - Could also see reflections!
  - Hypothesis supported



The Result

- **The Fire Catch**
  - Simple to use
  - Intuitive software
  - Simple result
  - Results are logged
  - Patented Technology

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In Action

FIRE CATCH

The Issues

- **What were some of the development issues?**
  - Pipe sizes – they're not really all built the same
  - Occlusions
  - Air gaps
  - Paint thickness
  - Aligning probes
  - Water quality

Now – The Benefits

- Improved safety
- Minimised disruption
- Real-time inspection results
- Improved efficiency and accuracy
- Reduced risk of human error
- Reduce long-term costs
- Better data
- Enhanced reputation and trust

Technician Wellbeing

- **Reducing stress and risk:**
  - We keep forgetting about them!
  - No need for direct system interaction
  - Fewer hazards on the job
  - Significantly reduced risk of injury to technicians
  - Alleviation of stress and anxiety for technicians
  - Improved confidence and competence

Cost & Risk Management

- **Quantitative and qualitative improvements:**
  - Lower repair and maintenance costs
  - Reduced downtime and insurance risk
  - Enhanced safety for building occupants
  - Promotion of a safety-conscious culture

Summary / Key Takeaways

- Safe, non-invasive, accurate
- Validated by research and field trials
- Benefits for owners, contractors, and technicians
- Embrace modern testing methods
- Improve safety, efficiency, and compliance

Q&A

- Questions?

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