

CRALEY

TM

Making Your Network Smarter

Since 2014, CRALEY Group have been developing and patenting innovative solutions for the development of SMART pipeline Infrastructure focussing on 3 keys areas: CRALEY Sensing, CRALEY Fibre and CRALEY Liner.

CRALEY Fibre



CRALEY Sensing



CRALEY Liner



CRALEY Fibre

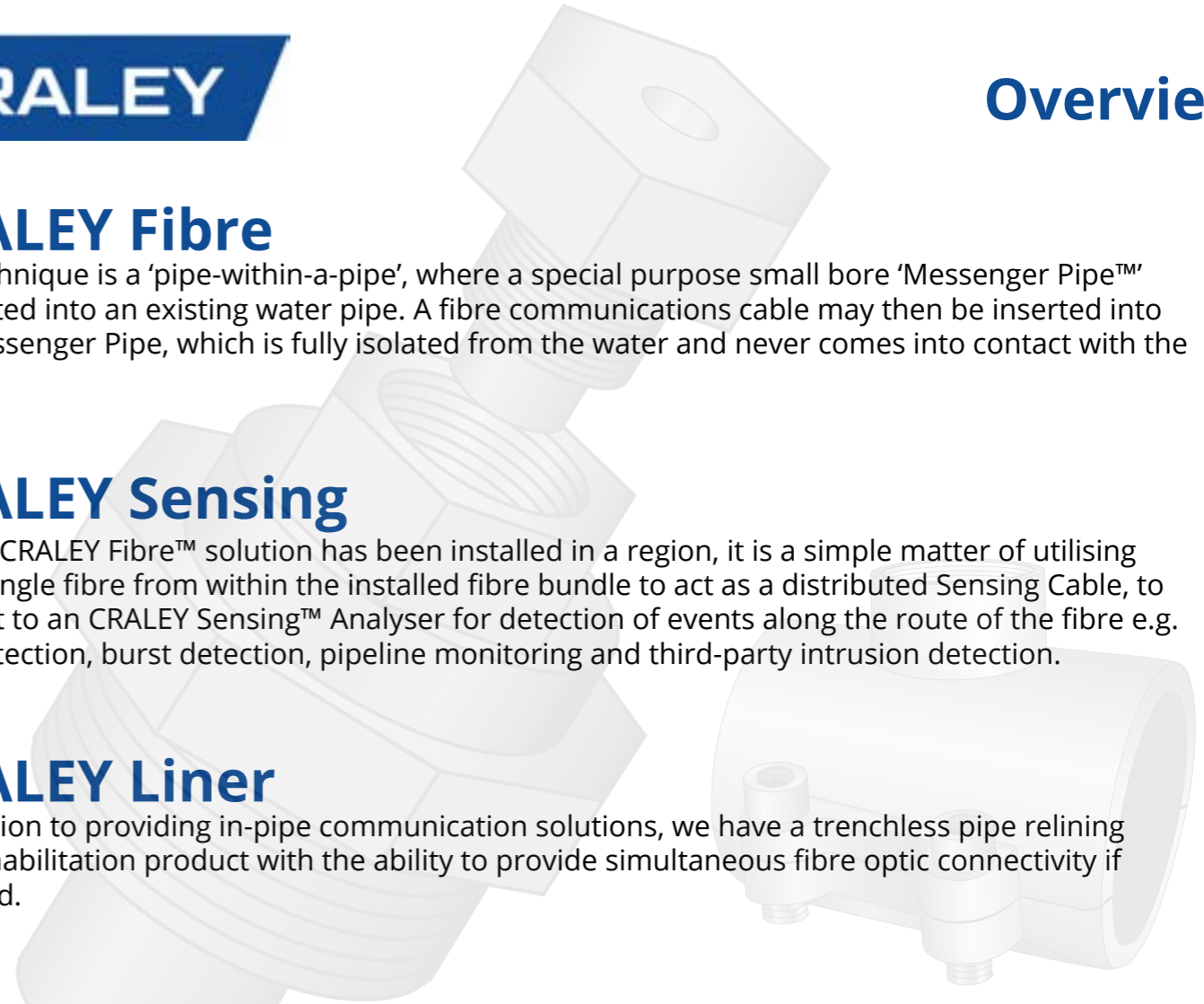
The technique is a 'pipe-within-a-pipe', where a special purpose small bore 'Messenger Pipe™' is inserted into an existing water pipe. A fibre communications cable may then be inserted into the Messenger Pipe, which is fully isolated from the water and never comes into contact with the water

CRALEY Sensing

Once a CRALEY Fibre™ solution has been installed in a region, it is a simple matter of utilising just a single fibre from within the installed fibre bundle to act as a distributed Sensing Cable, to connect to an CRALEY Sensing™ Analyser for detection of events along the route of the fibre e.g. leak detection, burst detection, pipeline monitoring and third-party intrusion detection.

CRALEY Liner

In addition to providing in-pipe communication solutions, we have a trenchless pipe relining and rehabilitation product with the ability to provide simultaneous fibre optic connectivity if required.

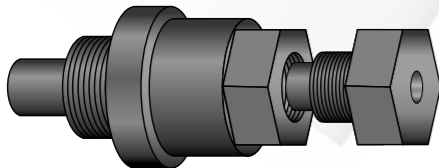


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Fibre optics, via a CRALEY Fibre™ installation, can provide a single, unified and ultra-fast communications platform, fully future-proofed, suitable for any and all purposes, and with access available ready for use at all water company locations, chambers, assets and buildings.

A single, ubiquitous coverage and owned fibre platform would reduce costs in management, and reduce long term costs in rental of circuits from third party providers and facilitate long-term SMART Water Networks.

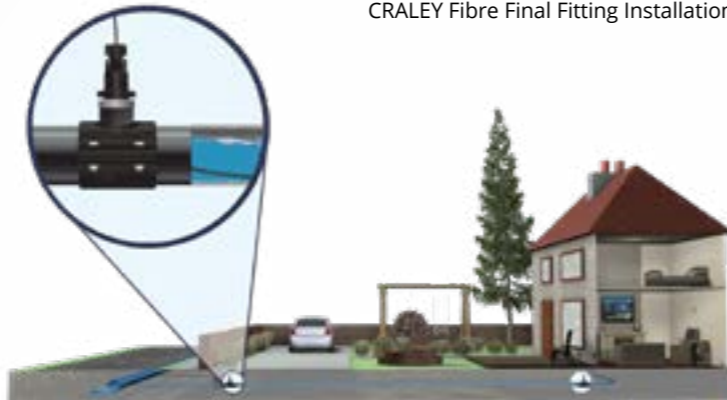
- **A faster deployment method**
- **Reduced civil works**
- **Less public disturbance**
- **Reduced environmental impact**



CRALEY Fibre



CRALEY Fibre Final Fitting Installation



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CRALEY Sensing™ is an application that interfaces with the installed fibre optic communications cable.

It requires the use of just a single fibre from within the installed cable. A CRALEY Sensing™ Analyser Unit is connected to just one end of the CRALEY Fibre™ installation.

Along the entire run length, up to 40km (25miles), no power or other equipment is needed. The in-pipe sensor fibre has unparalleled sensitivity due to intimate acoustic coupling.

The system creates more than 12,000 separate virtual sensors along the run, It is a truly real-time monitor.

- **Precise leak location**
- **Constant monitoring**
- **Asset protection**

CRALEY Sensing



CRALEY Lift & Shift vehicle

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CRALEY Liner

Launching Q1 2023

In-pipe relining for re-lining existing pipelines to extend their service life.

The re-lining is achieved using a laminated structure that is that are inserted into the existing pipeline, inflated with compressed air and fused together using a patented technique that requires:

- **No noxious chemicals**
- **No high temperature water**
- **No steam**
- **No heavy machinery**

The liner is friendly to the environment, is BPA free and is manufactured from recycled polymers.



Pipe Sizes	150mm to 300mm (6" to 12")
Structure	Multiple laminated HDPE layers
Technique	Laminated in Place Polymer (LIPP™)
Curing technique	Non-contact magnetic lamination heating
Typical insertion rate	Up to 300m (1,000ft) per day
Bisphenol A (BPA) free	YES
Option of adding fibre optic communication ducts	YES
Pre-inserted fibre option	YES

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CRALEY Fibre

In-pipe communication links

Broadband Connectivity

Municipality Broadband

Community Broadband

5G Cell Connectivity

SCADA upgrades

CRALEY Sensing

On-demand leak detection

**Permanent 24/7 365
real-time leak monitoring**

Supply pipe leak detection

Pipeline camera surveys

Asset mapping

**Third-party intrusion
detection**

**Water Terrorism
(CBRN mitigation)**

CRALEY Liner

**Laminate in place (LIPP™)
polymer lining**

**Optional fibre optic cable
integration**

Environmentally friendly

**Uses recycled plastic
polymers**

BPA Free



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