



Micron
NETWORKS LTD

Fibre Floating The way of water

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VikingLink

nationalgrid | **ENERGINET**

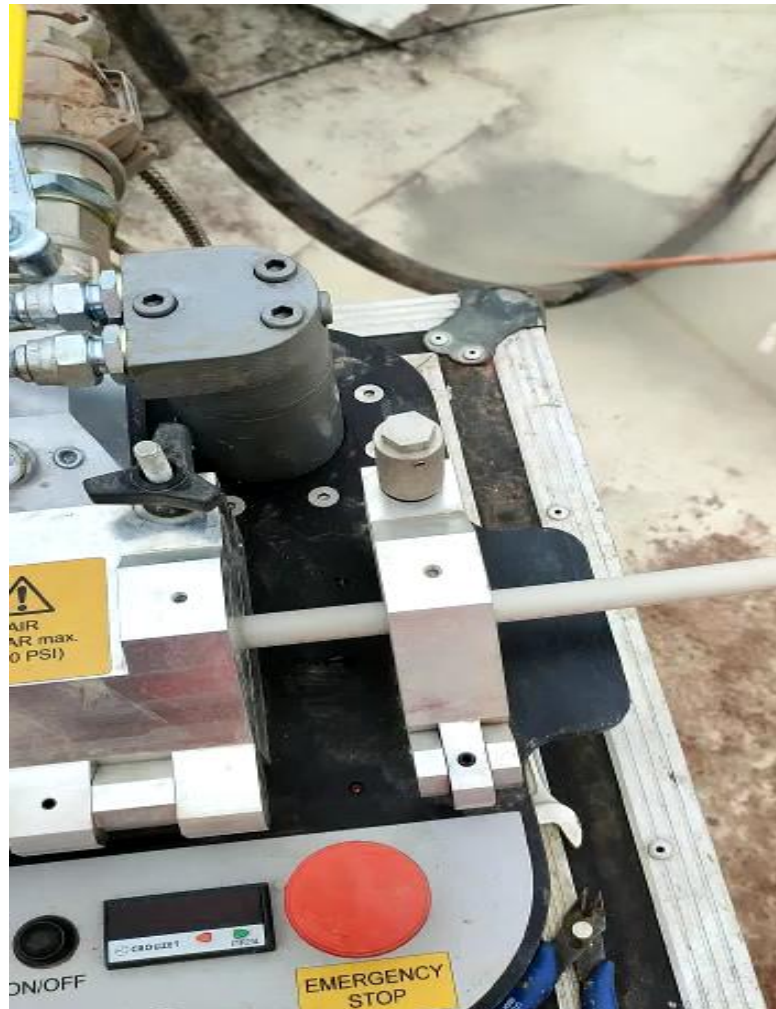
The Project & Reason for Floating

- Very High-profile project, really looking forward to doing.
- 140K 14/10 Direct Bury Tube & 36 Fibre Mini Cable for DTS System.
 - As always, the Fibre was an after thought.
 - We Started Floating for Civils Avoidance.

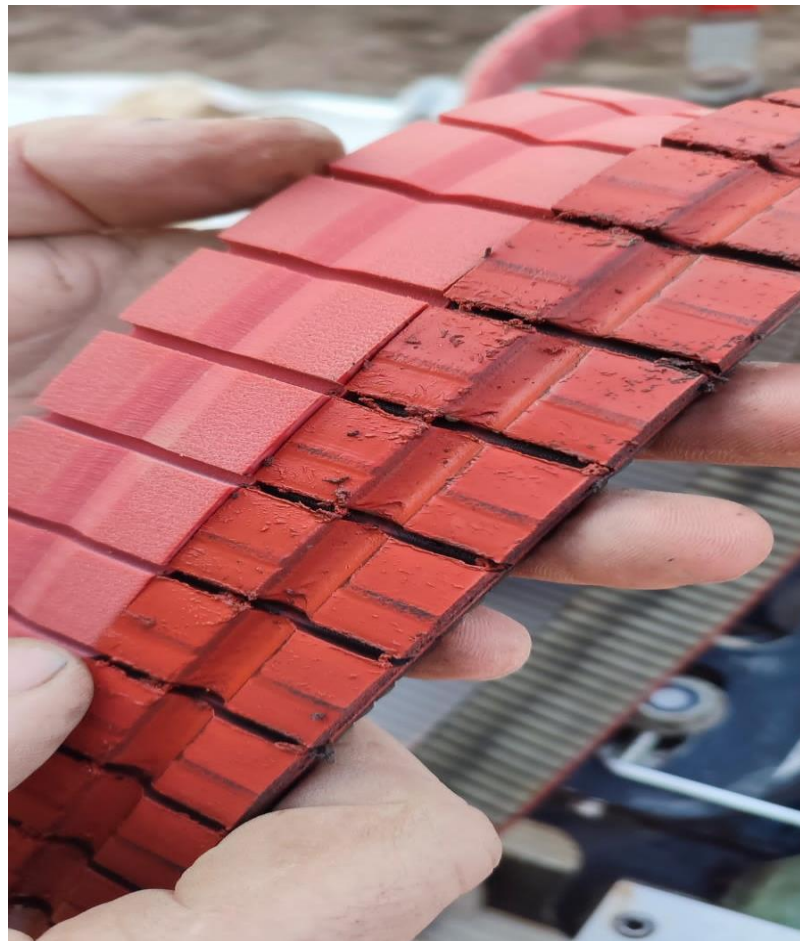


ISSUES FACED ON THE PROJECT

- Leaking connectors – Should have been DB.
- Air bubbling out of the ground Across the job – incorrectly installed connectors.
 - Not pressure tested - Failed Pressure & Bead tests.
- Silt in the ducts, not capped off. Failings of the Client & Civils Contractor.

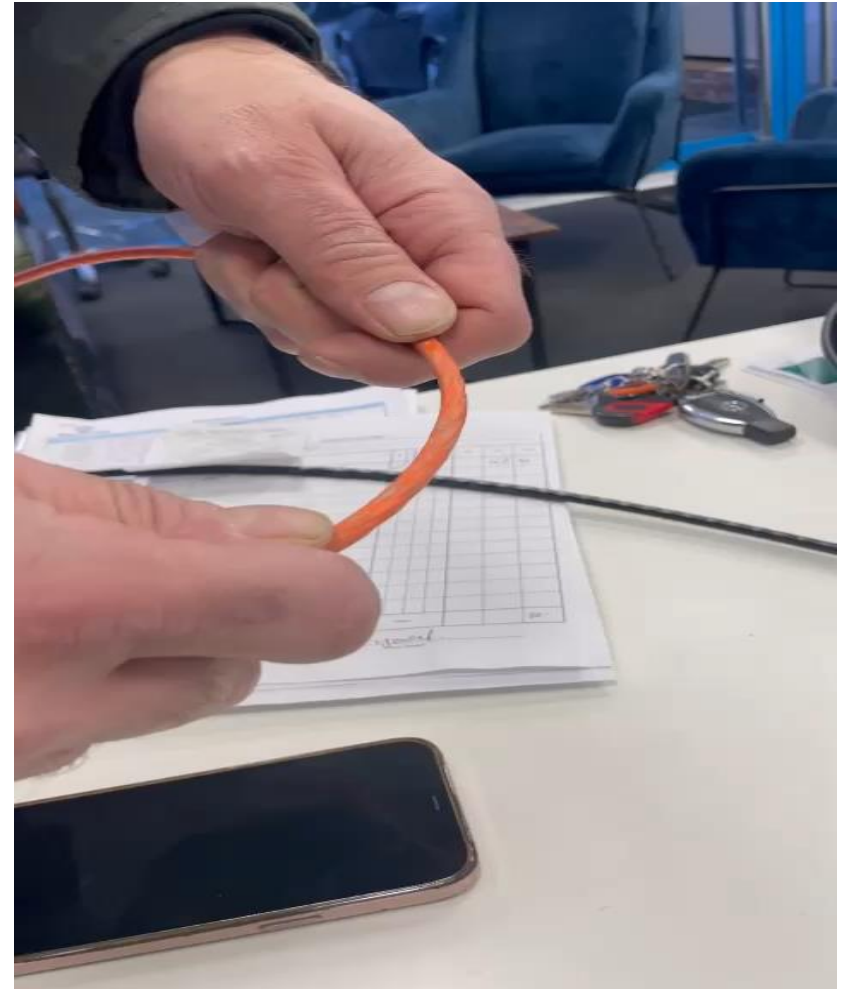
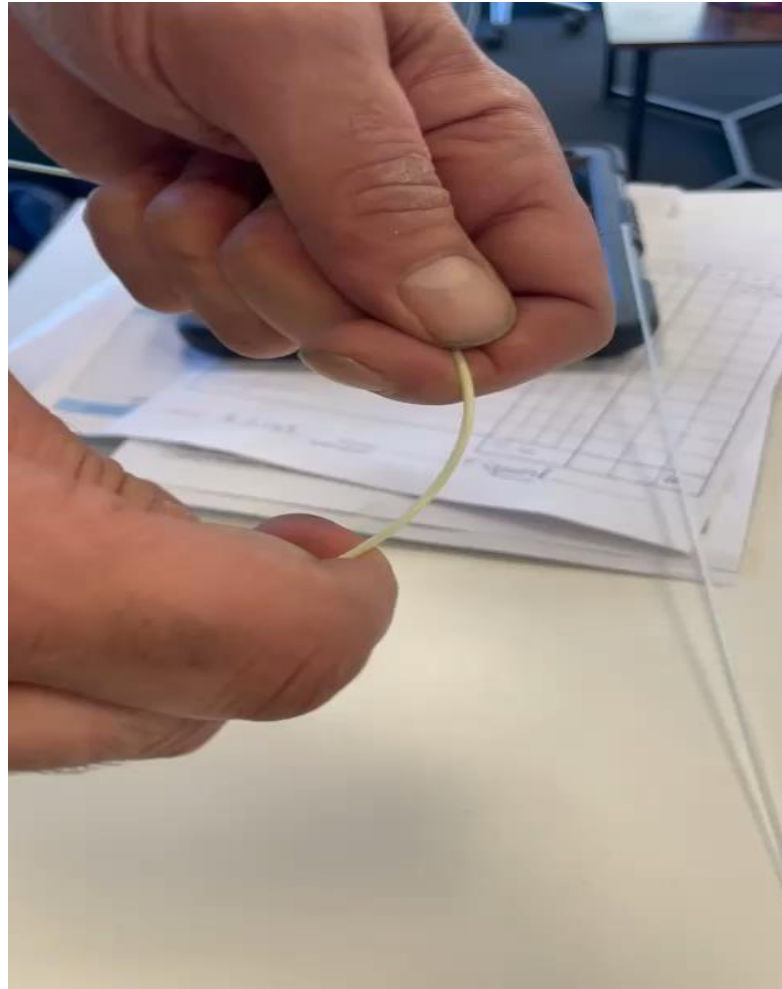


- Excessive force needed to move the cable.
 - Belts needed replacing a few times.
 - Blowing machine needed full rebuild.
- Blowing 500m, slow to a stop @ 700 and 900m max – access 1200m.
 - Unable to move 200m out after installation.



Weak Cable

- Supplier 300N max force on the data sheet.
- Carried out a crash test and the cable crashed between 400N & 450N.
 - Telecoms version crashed @ 600N+.



Could have just walked away.

The bigger picture, so what Can we do to assist our client after their 5 years of pain.

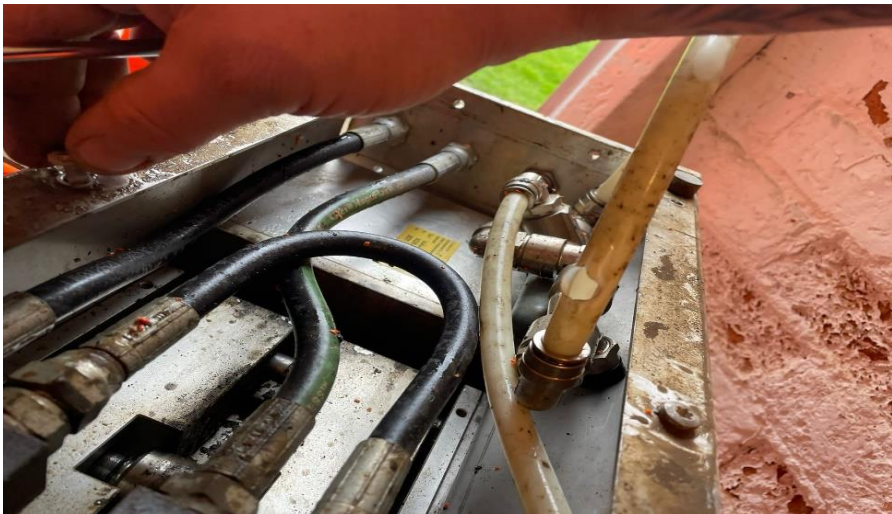
After much thought we decided to try Floating.

Approached 4 different blowing manufactures with no joy. £21K?



ISSUES WITH PLANT NOT DESIGNED FOR FLOATING

- Water kicking back and seizing blowers.
- Internal plastic tube expanding and blowing.
- Water leaking from internal connectors and plastic tube.



ISSUES WITH COUPLERS & HOSES

- Swapped for Hydraulic connectors rated to 200 Bar.
 - New Hydraulic Hoses rated to 210 Bar



ISSUES WITH CONNECTORS

- Connectors Rated to 30 Bar - ok with 20 Bar pump.
 - Connectors Blowing out with 50 Bar Pump.
 - Optimum pressure 40-45 Bar if tested good.
 - 30 bar Max on failed sections.
- Needed more control - Adjusted with bypass unit.

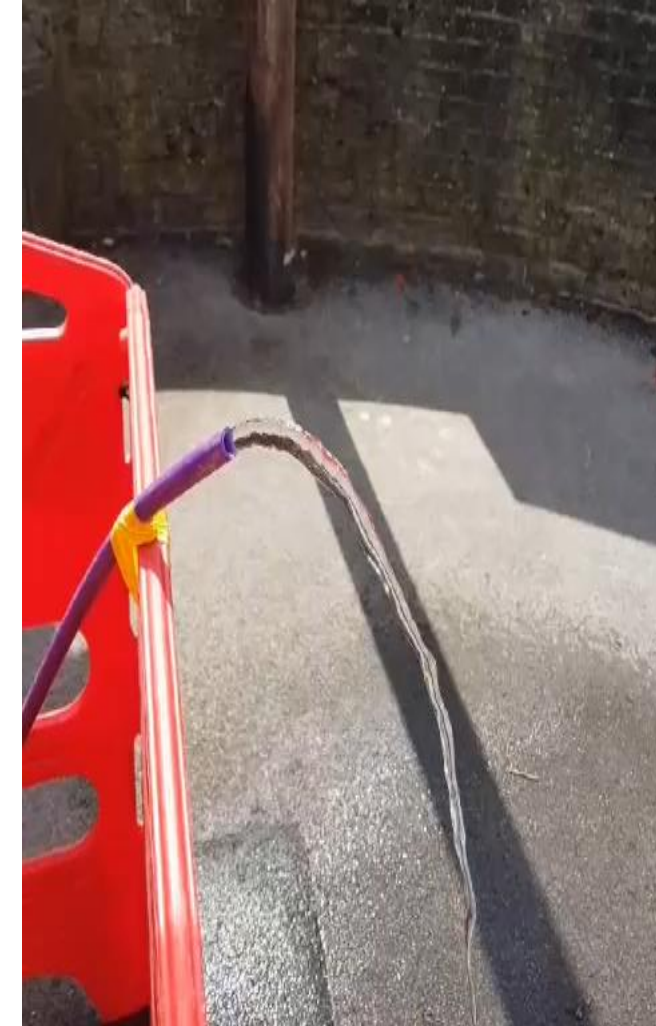


Adverse Weather



Installation Distances in Direct Bury Tube

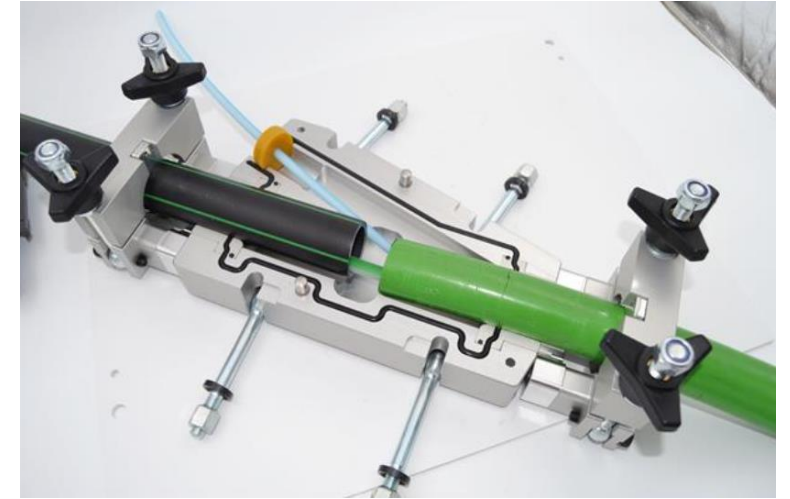
- Bad section that failed pressure test had to be installed in 1200m section – But still went in.
 - Good sections with passed pressure tests - full 3.6k sections.
 - As some will know this is unheard of in Direct Bury Tube.
- Had a few sections on the FFTx that would not go in with Air but floated in with water.



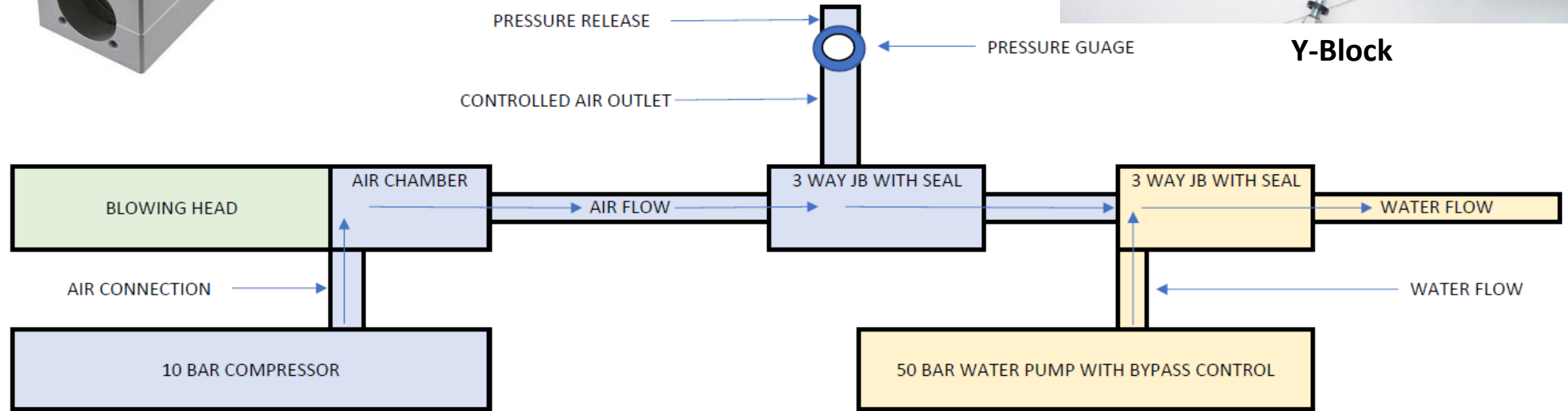
Final step for Mini-cable Junction Box Setup



Junction Box



Y-Block



Additional Project & Benefits of Floating

Our client asked us to install another small project in the Southeast.

This was 96mm duct with pulled 14/10 tube @ 7.4k.

Asked the cable supplier for 8K on one drum and installed end to end.

6K - 288F cable in 20/16.



- Not commercially viable, however the knowledge gained made it worthwhile.
- Client covered some of the costs without asking, repairs, plant & lost time.
- National Grid have asked Micron for design and Build moving forward, Pulled or 22/12 Tube.
 - The Green Link & Drax Power Station next.

