EMTELLE

HORIZONTAL DIRECTIONAL DRILLING




GLOBAL MANUFACTURER OF PRE-CONNECTORISED, BLOWN FIBRE CABLE & DUCTED NETWORK SOLUTIONS

WHAT IS HORIZONTAL DIRECTIONAL DRILLING?

Horizontal Directional Drilling (HDD) is a highly efficient and trenchless installation method for the underground placement of HDPE ducts and Emtelle's FibreFlow microduct bundles.

WHEN WILL IT BE USED?

Directional Drilling is used where open cut installations are not feasible or the option to opentrench is not advisable. It has minimal impact on the surrounding area, suitable for a variety of soil conditions and in general only requires two manholes.

In most cases it is used for crossing obstacles such as rivers, railway lines, trees or simply because it is a preferred installation method. Further fields of application are used below surfaces that are particularly worthy of protection, such as those under monument protection or nature reserves.

EMTELLE'S EXPERIENCE USING HDD

Emtelle have been supplying our HDPE duct and Microduct solutions for HDD installations in many countries around the world from North America through Europe to New Zealand. Our experience in product design and manufacture for HDD is vast and we can support technically with any aspect where we can supply a full solution for HDD projects.

Emtelle offers a Ø23mm DropDrill (for microducts with ID Ø6-12mm) that can drill short distances of upto 2-3 metres for residential drops, to reduce risk of damage to the property owners gardens and pathways. This is ideal for commercial and residential drops to the home, which reduces the price for the customer connection hugely.

For the majority of installations, the drill length and the bore size required is much larger and Emtelle have a variety of HDPE ducts and microduct bundles available for installation into HDD installs.

Around the world there are many different installation techniques and different names for making a horizontal pathway under the ground, but the end objective is the same, which is to install ducted pathways for the placement of cables.

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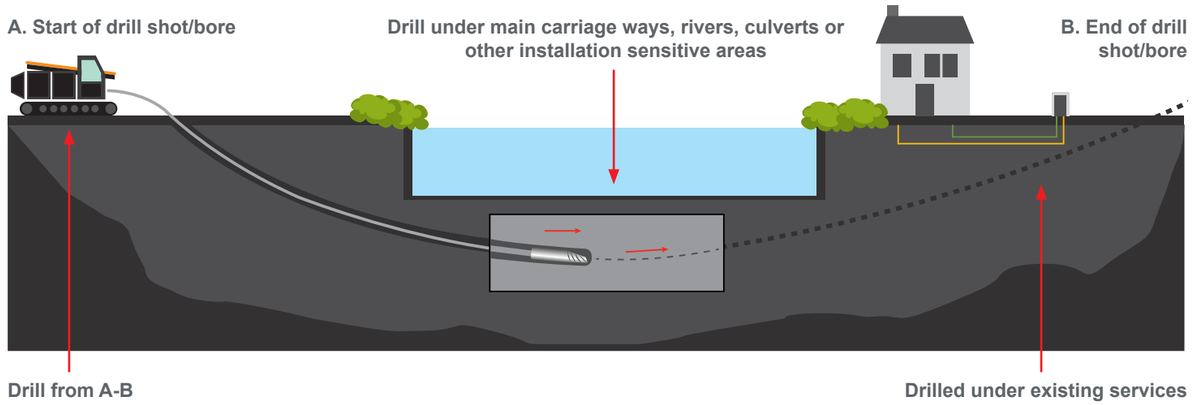
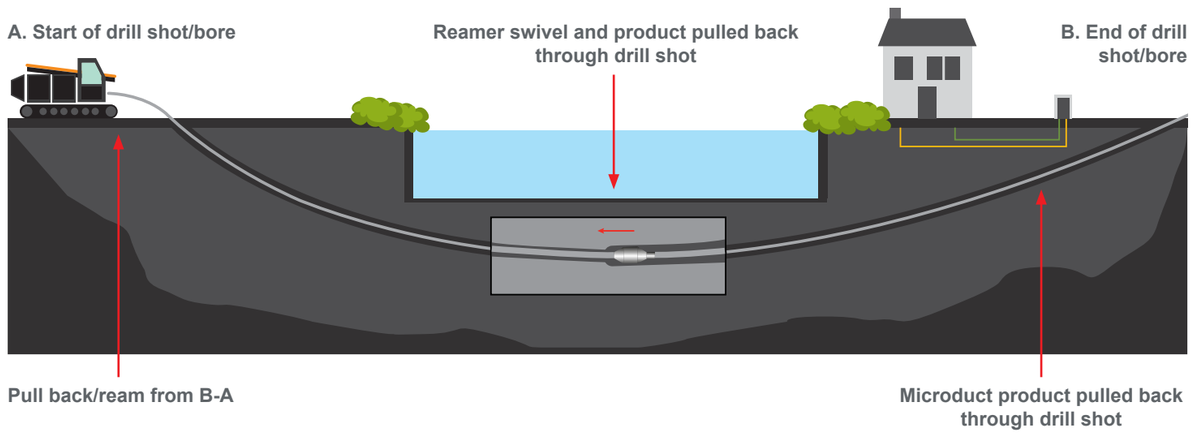
HOW DOES HORIZONTAL DIRECTIONAL DRILLING WORK?

A controllable pilot bore is carried out between two manholes. The effect of rotation and pushing movements enable propulsion in the most varied of soil conditions.

As the hole is bored, a steel drill string is extended behind a cutting head. Drilling suspension (bentonite) is used to cool the cutter and transmitter electronics, to flush excavated soil from the borehole and to lubricate the borehole. The cutting head is then removed and a back-reamer attached. The end of the duct is attached to the back-reamer through a swivel device. As the drill string is withdrawn to the drilling rig, the back-reamer enlarges the borehole and the duct is pulled into the hole. As with any duct pulling technique, the movement of the drill string and the duct string should be monitored. The pulling load on the duct must not exceed the allowable tensile load, or safe pull strength of the pipe. While being pulled, the duct has to be sealed with end caps or a heat shrinking cap.

The depth of the drilling can vary depending on the access required in the future, the drill string and any obstacles that are in the area of the installation. Small drill strings can reach depths of up to 10m, large drill strings with drilling lengths of up to 2km can reach depths of 50m or more. The achievable pulling length depends on the bundle's maximum tensile strength and the soil conditions.





HOW DOES HORIZONTAL DIRECTIONAL DRILLING WORK?

1.

Pothole services marked after locating, this will prevent any unwanted strikes to other services.

2.

Start drilling, take a record of depths and directional changes.

3.

Attach product to the reamer swivel, the swivels are rated for breaking loads, as stated on all Emtelle datasheets.

4.

Pull products back to the start location. Several microduct bundles can be pulled back at the same time, depending on the size of the bore hole.

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ADVANTAGES OF HDD COMPARED TO TRADITIONAL INSTALLATION

Suitable in different types of soil (up to soil class 6)	Much quicker process and in many cases lower overall costs	Cost savings compared to traditional installation	Working area is confined to the points of entry and exit only, causing less disruption of surrounding area
Microduct can be installed either in straight lines or curved to avoid any obstacles	Minimal disruption to road, river or rail traffic and minimal impact on landscapes	Distances up to 500m possible without the need for intermediate pits	Can be used to install microducts in changeable ground conditions
Less damage to surfaces	Less effort in rebuilding surfaces	Less building material needed	Less workers needed

APPLICATIONS

- Crossing obstacles such as rivers, highways, railway lines or trees
- Surfaces that are particularly worthy of protection (monument protection/reservation)
- General Telecoms, FTTH Applications, 5G & IoT connections
- Onshore/Offshore connections in coastal areas
- Connection of underground structures

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FibreFlow DBR

EMTELLE SOLUTIONS FOR HDD

HDPE ducts are the ducts of choice for trenchless installations using directional drilling. It's flexibility, strength and fused joints are as strong as the original duct itself, make it ideal for HDD applications.

Emtelle have a variety of products that can be installed via Directional Drilling. Since high tensile forces (depending on distance and route) are applied during HDD installation, the load requirement for installation needs to be high. We advise to use Emtelle's reinforced range of thick walled microduct bundles with double sheath to give extra strength during the installation process.

Each of Emtelle's Datasheets show the maximum tensile load that can be applied to our products during installation.

- FibreFlow DBR microduct bundle with double sheath and ca. 30% higher tensile load
- Outer sheath: HDPE, orange, 1.2mm wall thickness
- Inner sheath: PP, natural, 1mm wall thickness

- FibreFlow reinforced microduct bundle with PVC filling and ca. 20% higher tensile load

- FibreFlow Universal Drop Tube
- 2xGRP strength members in wall for added strength
- Spade resistant
- Used for customer connection

Many other products available

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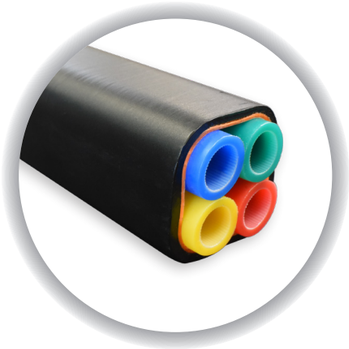
FibreFlow DBR

EMTELLE SOLUTIONS FOR HDD

FEEDER NETWORK



4-Way DBRMF 20/15mm

BLOWING DISTANCE N x 100 = 2000m | TENSION 8000 N | Up to 288 Fibres

DISTRIBUTION NETWORK

24-Way DBRMF 7/4mm

BLOWING DISTANCE N x 100 = 2000m | TENSION 11500 N | Up to 96 Fibres

CUSTOMER CONNECTION

Universal Drop Tube

Emtelle DropDrill

View the Emtelle DropDrill on our Youtube

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