WHY DIG TRENCHES WHEN THERE ARE BETTER SOLUTIONS?
TRENCHLESS TECHNOLOGY FOR YOUR APPLICATIONS

The economic and ecological advantages of trenchless pipeline construction compared to open trenching are obvious:

- Valuable surfaces and resources are preserved because time-consuming excavation and restoration work is omitted
- Less traffic disruption and less inconvenience for residents
- Minimal material costs and emissions
- Far quicker process time and significantly lower costs

Our NODIG product range covers the complete application range of trenchless technologies for supply and disposal. Whether you want to expand your pipeline network, make connections to the end user or renew pipelines – all this can be done underground without the need for digging trenches.

With trenchless technologies, pipeline engineering is environmentally friendly, sustainable and economical – regardless of which application is used. Over the rest of the document you will learn about the possibilities our intelligent and flexible NODIG solutions that we can offer and how we and our partners worldwide can support you in the planning and implementation of your projects.
BETTER SUPPLY & DEMAND
Water management worldwide faces the constant challenge of securing the supply of high-quality drinking water and adapting the capacities of the pipeline network to increasingly growing customer demand. In order to ensure this, while keeping costs for utilities and consumers as low as possible, trenchless technologies offer sustainable and reliable solutions.

PROFITABLE PIPELINE NETWORKS
With our NODIG systems, you can build and maintain your water supply network in a profitable and environmentally friendly way, using existing complex infrastructures as well as in areas where development in open construction is neither ecologically nor economically reasonable. Various methods can be used, from the installation of pressure pipes for water transport and distribution, to the fitting of a house connection and the sustainable renewal of damaged water pipes.
AT A GLANCE

- Reliable installation of water pipes along roads and under traffic and waterways with short or long pipes made of all standard materials
- Underground construction of water house connections from the building or directly from the connection room to the main pipe or in the opposite direction
- Trenchless renewal of irreparably damaged transport pipelines and house connections with the replacement of new pipes in the existing route in order to avoid water losses in the long term
- Trenchless pipe renewal enables the sustained prevention of leaks while simultaneously adapting the pipe capacity by 1–2 nominal widths
- Reliable and accurate technology, reliable and proven application

IN DETAIL

NEW PIPE INSTALLATION 6–7
HOUSE CONNECTION TECHNOLOGY 8–11
PIPE RENEWAL 12–13
PARALLEL BORES

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- 32–710 mm

Pipe materials
- PE, PP, steel, cast iron

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs

CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- 32–710 mm

Pipe materials
- PE, PP, steel, cast iron

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs
CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

Method
- HDD horizontal directional drilling

Bore length
- Max. 100 m
- 32–160 mm

Pipe diameter
- PE, PP, steel, cast iron
- 1–7, acc. to DIN 18324

Pipe materials
- GRUNDOPIT fluid-assisted mini drill rigs

Soil classes
- NODIG system

CROSSINGS UNDERNEATH TRAFFIC WAYS

Method
- Non-steerable soil displacement method

Bore length
- Max. 25 m

Pipe diameter
- Up to 160 mm

Pipe materials
- PE, PP, steel, cast iron

Soil classes
- 1–5, displaceable soils

NODIG system
- GRUNDOMAT soil displacement hammers
WATER PIPELINES
HOUSE CONNECTION TECHNOLOGY

HOUSE CONNECTION: PIT–BASEMENT

Method
- HDD horizontal directional drilling

Bore length
- Max. 100 m

Pipe diameter
- 32–160 mm

Pipe materials
- PE, PP, steel, cast iron

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDOPIT fluid-assisted mini drill rigs

HOUSE CONNECTION: PIT–PIT

Method
- HDD horizontal directional drilling

Bore length
- Max. 100 m

Pipe diameter
- 32–160 mm

Pipe materials
- PE, PP, steel, cast iron

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: PIT–PIT

Method
- Non-steerable soil displacement method

Bore length
- Max. 25 m

Pipe diameter
- Up to 160 mm

Pipe materials
- PE, PP, PVC (short and long pipes)

Soil classes
- 1–5, displaceable soils

NODIG system
- GRUNDOMAT soil displacement hammers

HOUSE CONNECTION: KEYHOLE–BASEMENT

Method
- HDD horizontal directional drilling

Bore length
- Max. 60 m

Pipe diameter
- Up to 90 mm

Pipe materials
- PE (short and long pipes)

Soil classes
- 1–5

NODIG system
- GRUNDOPIT keyhole
WATER PIPELINES
HOUSE CONNECTION TECHNOLOGY

HOUSE CONNECTION: BASEMENT–PIT

Method
Non-steerable soil displacement method

Bore length
25 m

Pipe diameter
160 mm

Pipe materials
PE, PVC (short and long pipes)

Soil classes
1–5

NODIG system
GRUNDOMAT soil displacement hammers

Method
HDD horizontal directional drilling

Bore length
Max. 100 m

Pipe diameter
32–160 mm

Pipe materials
PE, PP, steel, cast iron

Soil classes
1–7, acc. to DIN 18324

NODIG system
GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: BASEMENT–KEYHOLE

Method
- Non-steerable soil displacement method

Bore length
- Max. 25 m
- Up to 160 mm

Pipe diameter
- PE, PP, PVC (short and long pipes)
- 1-5, displaceable soils
- GRUNDOMAT soil displacement hammers
WATER PIPELINES
PIPE RENEWAL

INSTALLATION OF PIPES WITH SMALLER, EQUAL OR LARGER DIAMETER

Method
- Static pipe bursting

Bore length
- Max. 300 m
- 50–1,200 mm

Pipe diameter

Pipe materials old pipe
- Grey cast iron, ductile cast iron, asbestos cement, fibre cement, PE/PP, PVC, glass fibre reinforced plastics (GRP), steel, liner

Pipe materials new pipe
- PE/PP, PVC, glass fibre reinforced plastics (GRP), ductile cast iron, steel

Soil classes
- Old pipes passable for bursting rods

NODIG system
- GRUNDOBURST static pipe bursting systems
HIGH-SPEED NETWORKING
A high-performance fibre optic network is the backbone of digitalisation. However, broadband expansion is not progressing as quickly as necessary in many places. This is due to the high costs for installing the cables, but also time-consuming civil engineering procedures. Costs and time can be improved if the trenchless technology method is used.

Using our innovative & trend-setting NODIG systems for the underground installation of protection pipes and cables, you can quickly and cost-efficiently expand your fibre optic network directly to the house or into the cellar and without any follow-up costs.

MICROTRENCHING WAS YESTERDAY
With our NODIG systems, you don’t have to cut deep slits in the asphalt in order to bring the fibre optic quickly and safely to the end customer (FTTH). When using our innovative trenchless house connection technology, there is no loss of value in traffic areas or even high restoration costs, nor is the supply narrowed by insufficient installation depths.
AT A GLANCE
- Fast underground installation of pipes and cables along roads (FTTC) and under traffic routes with short or long pipes made of all standard materials
- Installation of fibre optic cables through existing sewers is also possible
- Trenchless technologies are suitable in rural areas and urban areas

IN DETAIL
DISTRIBUTION NETWORKS FTTC 16–17
HOUSE CONNECTION TECHNOLOGY FTTH/FTTB 18–21
PARALLEL BORES

- Method: HDD horizontal directional drilling
- Bore length: Max. 500 m
- Pipe diameter: 32–710 mm
- Pipe materials: PE (protection pipes), single pipes and pipe bundles
- Soil classes: 1–7, acc. to DIN 18324
- NODIG system: GRUNDODRILL fluid-assisted HDD rigs

CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

- Method: HDD horizontal directional drilling
- Bore length: Max. 500 m
- Pipe diameter: 63–710 mm
- Pipe materials: PE (protection pipes), single pipes and pipe bundles
- Soil classes: 1–7, acc. to DIN 18324
- NODIG system: GRUNDODRILL fluid-assisted HDD rigs
CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

**Method**
- HDD horizontal directional drilling

**Bore length**
- Max. 100 m

**Pipe diameter**
- 32–160 mm

**Pipe materials**
- PE (protection pipes), single pipes and pipe bundles

**Soil classes**
- 1–7, acc. to DIN 18324

**NODIG system**
- GRUNDOPIT fluid-assisted mini drill rigs

CROSSINGS UNDERNEATH TRAFFIC WAYS

**Method**
- Non-steerable soil displacement method

**Bore length**
- Max. 25 m

**Pipe diameter**
- Up to 160 mm

**Pipe materials**
- PE, PP, PVC (short and long pipes)

**Soil classes**
- 1–5, displaceable soils

**NODIG system**
- GRUNDOMAT soil displacement hammers
**FIBRE OPTIC NETWORKS**

**HOUSE CONNECTION TECHNOLOGY FTTH/FTTB**

**HOUSE CONNECTION: PIT–BASEMENT**

- **Method**
  - HDD horizontal directional drilling
- **Bore length**
  - Max. 100 m
- **Pipe diameter**
  - 32–160 mm
- **Pipe materials**
  - PE (protection pipes), single pipes and pipe bundles
- **Soil classes**
  - 1–7, acc. to DIN 18324
- **NODIG system**
  - GRUNDOPIT fluid-assisted mini drill rigs

**HOUSE CONNECTION: PIT–PIT**

- **Method**
  - HDD horizontal directional drilling
- **Bore length**
  - Max. 100 m
- **Pipe diameter**
  - 32–160 mm
- **Pipe materials**
  - PE (protection pipes), single pipes and pipe bundles
- **Soil classes**
  - 1–7, acc. to DIN 18324
- **NODIG system**
  - GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: KEYHOLE–BASEMENT

Method
HDD horizontal directional drilling

Bore length
Max. 60 m

Pipe diameter
Up to 90 mm

Pipe materials
PE (short and long pipes)

Soil classes
1–5

NODIG system
GRUNDOPIT keyhole

HOUSE CONNECTION: MANHOLE–BASEMENT

Method
HDD horizontal directional drilling

Bore length
Max. 50m

Pipe diameter
Up to 160 mm

Pipe materials
PE (protection pipes), single pipes and pipe bundles

Soil classes
1–7, acc. to DIN 18324

NODIG system
GRUNDOPIT S fluid-assisted mini drill rigs
### FIBRE OPTIC NETWORKS

#### HOUSE CONNECTION TECHNOLOGY FTTH/FTTB

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**HOUSE CONNECTION: PIT–PIT**

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</table>
HOUSE CONNECTION: BASEMENT–KEYHOLE

Method
- Non-steerable soil displacement method

Bore length
- Max. 25 m

Pipe diameter
- Up to 160 mm

Pipe materials
- PE, PP, PVC (short and long pipes)

Soil classes
- 1–5, displaceable soils

NODIG system
- GRUNDOMAT soil displacement hammers

HOUSE CONNECTION: BASEMENT–PIT

Method
- Non-steerable soil displacement method

Bore length
- Max. 25 m

Pipe diameter
- Up to 160 mm

Pipe materials
- PE, PP, PVC (short and long pipes)

Soil classes
- 1–5, displaceable soils

NODIG system
- GRUNDOMAT soil displacement hammers
PROFESSIONALLY NETWORKED
Well developed natural gas distribution networks play an important role in the success of energy distribution. In order for the pipeline network to be able to transport and store sufficient quantities of fossil and increasingly renewable natural gas, high investments are required for the maintenance and expansion of the infrastructure. These expenses can be significantly reduced with trenchless technologies in an environmentally friendly way, and expansion can be accelerated without compromising supply quality and security.

A QUESTION OF SAFETY
Whether it be pipelines for the feeding of natural gas produced worldwide into national networks, pressure pipelines for transport and distribution, pipelines for storing synthetic gas from the overproduction of green electricity, or the connection of service lines to the end consumer, all these pipes can be installed and even renewed without open-cut trenches using our NODIG processes – safely and professionally according to the latest technical standards.
AT A GLANCE
- Professional installation of protection and product pipes along roads and under traffic and waterways, with short or long pipes made of all standard materials
- Trenchless construction of gas house connections from the pit/keyhole to the building or directly into the supply room and vice versa
- The minimally invasive keyhole technology has been developed especially for the serial installation and renewal of gas house connections. It really couldn't be more easy and economical

Trenchless renewal of damaged gas pipelines and house connections, by the replacement with new pipes in the existing route (pipe bursting) enables the sustained prevention of leaks while simultaneously adapting the pipe capacity by 1–2 nominal widths
- Maximum planning and technical safety while maintaining the latest regulations
- Precise proof and documentation of position, function and tightness of the new pipelines

IN DETAIL
NEW PIPE INSTALLATION 24–25
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PIPE RENEWAL 30–31
### NATURAL GAS DISTRIBUTION NETWORKS

#### NEW PIPE INSTALLATION

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#### PARALLEL BORES

<table>
<thead>
<tr>
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<th>Specification</th>
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<td>Method</td>
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#### CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

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</table>
CROSSINGS UNDERNEATH TRAFFIC WAYS

**Method**
- Non-steerable soil displacement method

**Bore length**
- Max. 25 m

**Pipe diameter**
- Up to 160 mm

**Pipe materials**
- PE, PP, PVC (short and long pipes), PA12

**Soil classes**
- 1–5, displaceable soils

**NODIG system**
- GRUNDOMAT soil displacement hammers

CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

**Method**
- HDD horizontal directional drilling

**Bore length**
- Max. 100 m

**Pipe diameter**
- 32–160 mm

**Pipe materials**
- PE, steel (media or protection pipes), PA12

**Soil classes**
- 1–7, acc. to DIN 18324

**NODIG system**
- GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: PIT–BASEMENT

Method
- HDD horizontal directional drilling
Bore length
- Max. 100 m
Pipe diameter
- 32–160 mm
Pipe materials
- PE (protection pipes), single pipes and pipe bundles, PA12
Soil classes
- 1–7, acc. to DIN 18324
NODIG system
- GRUNDOPIT fluid-assisted mini drill rigs

HOUSE CONNECTION: PIT–PIT

Method
- HDD horizontal directional drilling
Bore length
- Max. 100 m
Pipe diameter
- 32–160 mm
Pipe materials
- PE (protection pipes), single pipes and pipe bundles, PA12
Soil classes
- 1–7, acc. to DIN 18324
NODIG system
- GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: PIT–PIT

Method
Non-steerable soil displacement method

Bore length
Max. 25 m

Pipe diameter
Up to 160 mm

Pipe materials
PE, PP, PVC (short and long pipes), PA12

Soil classes
1–5, displaceable soils

NODIG system
GRUNDOMAT soil displacement hammers

HOUSE CONNECTION: KEYHOLE–BASEMENT

Method
HDD horizontal directional drilling

Bore length
Max. 60 m

Pipe diameter
Up to 90 mm

Pipe materials
PE (short and long pipes), PA12

Soil classes
1–5

NODIG system
GRUNDOPIT keyhole
HOUSE CONNECTION: BASEMENT–PIT

Method
- HDD horizontal directional drilling

Bore length
- Max. 100 m

Pipe diameter
- 32–160 mm

Pipe materials
- PE (protection pipes), single pipes and pipe bundles, PA12

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: BASEMENT–PIT

- **Method**: Non-steerable soil displacement method
- **Bore length**: Max. 25 m
- **Pipe diameter**: Up to 160 mm
- **Pipe materials**: PE, PP, PVC (short and long pipes), PA12
- **Soil classes**: 1–5, displaceable soils
- **NODIG system**: GRUNDOMAT soil displacement hammers
RENEWAL OF NATURAL GAS PIPELINES

Method
- Dynamic pipe bursting

Bore length
- Max. 300 m
- Up to 508 m

Pipe diameter
- Steel, glass fibre reinforced plastics (GRP), PA12
- Steel, PE/PP, PVC, PA12

Pipe materials old pipe
- Old pipes passable for winch rope

Pipe materials new pipe
- GRUNDOCRACK

Soil classes
- Old pipes passable for winch rope

NODIG system
INSTALLATION OF PIPES WITH SMALLER, EQUAL OR LARGER DIAMETER

**Method**
- Static pipe bursting

**Bore length**
- Max. 300 m
- 50–1,200 mm

**Pipe diameter**
- Steel, glass fibre reinforced plastics (GRP), PA12
- Steel, PE/PP, PVC, PA12
- Old pipes passable for bursting rods
- GRUNDOBURST static pipe bursting systems

**Pipe materials old pipe**
- Steel,
- Glass fibre reinforced plastics (GRP),
- PA12

**Pipe materials new pipe**
- Steel,
- PE/PP,
- PVC,
- PA12

**Soil classes**
- Old pipes passable for bursting rods
GUARANTEED POWER SUPPLY
The basic supply of electricity requires a dense and flexible electricity network. However, high costs for underground cable construction and open line installation often prevents the electricity from getting to where it is needed. The solution is the ecologically and economically gentle underground construction method. With trenchless technologies, underground cabling is possible practically everywhere: whether in complex urban areas or across country, including protected areas or underwater.

ENVIRONMENTALLY FRIENDLY INSTALLATIONS
With our NODIG systems you can install protection pipes for transport and distribution of medium and high-voltage power over long distances, just as easily and environmentally friendly as the service lines to the end user, even directly into the supply room. By laying cables underground, you can also realise projects that would otherwise not be feasible for nature conservation reasons. Innovative technologies and proven standards make this easier than you think.
AT A GLANCE

- Clever installation of protection pipes and cables along roads and under traffic and waterways with short or long pipes made of all standard materials
- Trenchless construction of power connections from the pit/keyhole to the building or directly to the supply room and vice versa
- Trouble-free realisation of the necessary installation depths for safe underground cable installation
- Maximum planning and technical safety through consideration of the latest regulations
- Precise proof position, function and tightness of the new pipelines
- Recognised by environmental associations as sustainable techniques with verifiably low consumption of nature capital

IN DETAIL

NEW PIPE INSTALLATION 34–35
HOUSE CONNECTION TECHNOLOGY 36–39
GROUND CABLING
NEW PIPE INSTALLATION

PARALLEL BORES

Method

- HDD horizontal directional drilling

Bore length

- Max. 500 m

Pipe diameter

- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

Pipe materials

- PE, steel

Soil classes

- 1–7, acc. to DIN 18324

NODIG system

- GRUNDODRILL fluid-assisted HDD rigs

CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

Method

- HDD horizontal directional drilling

Bore length

- Max. 500 m

Pipe diameter

- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

Pipe materials

- PE, steel

Soil classes

- 1–7, acc. to DIN 18324

NODIG system

- GRUNDODRILL fluid-assisted HDD rigs
CROSSINGS UNDERNEATH TRAFFIC WAYS

Method
- Non-steerable soil displacement method

Bore length
- Max. 25 m

Pipe diameter
- Up to 160 mm

Pipe materials
- PE, PP, PVC (short and long pipes)

Soil classes
- 1–5, displaceable soils

NODIG system
- GRUNDOMAT soil displacement hammers

CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

Method
- HDD horizontal directional drilling

Bore length
- Max. 100 m

Pipe diameter
- 32–160 mm

Pipe materials
- PE, steel

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDOPIT fluid-assisted mini drill rigs
GROUND CABLING
HOUSE CONNECTION TECHNOLOGY

HOUSE CONNECTION: PIT–BASEMENT

- **Method**: HDD horizontal directional drilling
- **Bore length**: Max. 100 m
- **Pipe diameter**: 32–160 mm
- **Pipe materials**: PE, steel
- **Soil classes**: 1–7, acc. to DIN 18324
- **NODIG system**: GRUNDOPIT fluid-assisted mini drill rigs

HOUSE CONNECTION: PIT–PIT

- **Method**: HDD horizontal directional drilling
- **Bore length**: Max. 100 m
- **Pipe diameter**: 32–160 mm
- **Pipe materials**: PE, steel
- **Soil classes**: 1–7, acc. to DIN 18324
- **NODIG system**: GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: PIT–PIT

Method
Non-steerable soil displacement method

Bore length
Max. 25 m

Pipe diameter
Up to 160 mm

Pipe materials
PE, PP, PVC (short and long pipes)

Soil classes
1–5, displaceable soils

NODIG system
GRUNDOMAT soil displacement hammers

HOUSE CONNECTION: KEYHOLE–BASEMENT

Method
HDD horizontal directional drilling

Bore length
Max. 60 m

Pipe diameter
Up to 90 mm

Pipe materials
PE (short and long pipes)

Soil classes
1–5

NODIG system
GRUNDOPIT keyhole
HOUSE CONNECTION: BASEMENT–PIT

**Method**
- HDD horizontal directional drilling

**Bore length**
- Max. 100 m

**Pipe diameter**
- 32–160 mm

**Pipe materials**
- PE, steel

**Soil classes**
- 1–7, acc. to DIN 18324

**NODIG system**
- GRUNDOPIT fluid-assisted mini drill rigs

GROUND CBLING
HOUSE CONNECTION TECHNOLOGY
HOUSE CONNECTION: BASEMENT–PIT

**Method**
- Non-steerable soil displacement method

**Bore length**
- Max. 25 m

**Pipe diameter**
- Up to 160 mm

**Pipe materials**
- PE, PP, PVC (short and long pipes)

**Soil classes**
- 1–5, displaceable soils

**NODIG system**
- GRUNDOMAT soil displacement hammers
GUARANTEED ACCURACY
In Germany alone, the sewer networks transport more than 20 billion cubic meters of wastewater a year, which is contaminated with a wide variety of pollutants. In order to prevent infiltration of the groundwater, the construction of wastewater pipes is subject to strict regulations. To ensure that the pressure pipes and gravitation lines to pumping stations, manholes, collectors and buildings are absolutely tight and accurate, sewer construction requires installation of the highest precision. This precision is guaranteed in trenchless pipeline construction, if the pipes are being installed or renewed. Pipe cleaning is also possible.

SUSTAINABLE SAFETY
Repair is not a solution for massive pipe damage such as cracks, root ingrowths or socket mis-alignment. However our NODIG systems for pipe renewal are perfectly suitable for the sustainable renewal of damaged sewer pipes and house connections with minimum constructional and financial expenditure, and for the renovation of sewer systems.
AT A GLANCE

- Precise installation of sewage pressure pipes as well as gravity lines along roads and under traffic and waterways, with short or long pipes made of standard materials, also from manhole to manhole
- Precise underground installation of gravity lines for sewer house connections from or to manholes or pits

Trenchless replacement of non-repairable pipes, for house connections by replacing them with new pipes for the sustained prevention of leaks while simultaneously adapting the pipe capacity by 1–2 nominal widths
- Quick and accurate replacement of square and round manhole covers
- By-the-book and pinpoint techniques, reliable and proven application
- Precise proof and documentation of position, function and tightness of the new pipelines

IN DETAIL

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PIPE CLEANING 45
PIPE RENEWAL 46–49
SEWER CONSTRUCTION
NEW PIPE INSTALLATION

GRAVITY PIPES: PARALLEL BORES FROM MANHOLE-MANHOLE

Method
- Steerable auger boring

Bore length
- 25 m

Pipe diameter
- Up to 280 mm

Pipe materials
- Asbestos cement, stoneware, concrete, PP

Soil classes
- Displaceable soils

NODIG system
- GRUNDOBORE 200S auger boring rigs

GRAVITY PIPES

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

Pipe materials
- PE, steel, ductile

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs
GRAVITY PIPES: HOUSE CONNECTIONS FROM MANHOLE-PIT

Method
- Steerable auger boring

Bore length
- 25 m

Pipe diameter
- Up to 280 mm

Pipe materials
- Asbestos cement, stoneware, concrete, PP

Soil classes
- Displaceable soils

NODIG system
- GRUNDOBORE 200S auger boring rigs
CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS (PRESSURE PIPES)

**Method**
- HDD horizontal directional drilling

**Bore length**
- Max. 500 m

**Pipe diameter**
- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

**Pipe materials**
- PE, steel

**Soil classes**
- 1–7, acc. to DIN 18324

**NODIG system**
- GRUNDODRILL fluid-assisted HDD rigs

SEWER CONSTRUCTION
NEW PIPE INSTALLATION/PIPE CLEANING
CLEANING OF SEWER PIPES

Method
- Pipe cleaning

Bore length
- Max. 300 m

Pipe diameter
- Up to 1,200 mm
- All

Pipe materials
- Old pipes passable for bursting rods

Soil classes

NODIG system
- Pulling rig of GRUNDOBURST
RENEWAL OF SEWER PIPES: PIT–MANHOLE

Method
- Dynamic pipe bursting

Bore length
- Max. 300 m

Pipe diameter
- Up to 508 mm

Pipe materials old pipe
- Stoneware, concrete, stoneware-concrete, GG, PVC, AC/FC

Pipe materials new pipe
- PE/PP, steel, PVC

Soil classes
- Old pipes passable for winch rope

NODIG system
- GRUNDOCRACK

RENEWAL OF SEWER PIPES: PIT–PIT

Method
- Dynamic pipe bursting

Bore length
- Max. 300 m

Pipe diameter
- Up to 508 mm

Pipe materials old pipe
- Stoneware, concrete, stoneware-concrete, cast iron, PVC, AC/FC

Pipe materials new pipe
- PE/PP, steel, PVC

Soil classes
- Old pipes passable for winch rope

NODIG system
- GRUNDOCRACK
RENEWAL OF SEWER PIPES: PIT–PIT

Method
- Static pipe bursting

Bore length
- Max. 300 m
- 50–1,200 mm

Pipe diameter
- Stoneware, concrete, stoneware-concrete, steel, grey cast iron, PE/PP, PVC, GRP, AC/FC, liner

Pipe materials old pipe
- PE/PP, steel, PVC, grey cast iron, stoneware, PC, stoneware-concrete

NODIG system
- Old pipes passable for bursting rods
- GRUNDOBURST

RENEWAL OF HOUSE CONNECTIONS: MANHOLE–BASEMENT

Method
- Static pipe bursting

Bore length
- Max. 100 m
- Up to 280 mm

Pipe diameter
- Stoneware, concrete, stoneware-concrete, steel, grey cast iron, PE/PP, PVC, GRP, AC/FC, liner

Pipe materials old pipe
- PE/PP, steel, PVC, grey cast iron, stoneware, PC, stoneware-concrete

NODIG system
- Old pipes passable for bursting rods
- GRUNDOBURST 400S
SEWER CONSTRUCTION
PIPE RENEWAL

RENEWAL OF SEWER PIPES: MANHOLE–MANHOLE

Method
- Dynamic pipe bursting

Bore length
- Max. 300 m

Pipe diameter
- Up to 508 mm

Pipe materials old pipe
- Concrete, reinforced concrete, stoneware, grey cast iron, PVC, asbestos cement, fibre cement

Pipe materials new pipe
- PE/PP, PVC, steel

Soil classes
- Old pipes passable for winch rope

NODIG system
- GRUNDOCRACK

RENEWAL OF SEWER PIPES: PIT–MANHOLE

Method
- Static pipe bursting

Bore length
- Max. 300 m

Pipe diameter
- 50–1,200 mm

Pipe materials old pipe
- Stoneware, concrete, reinforced concrete, grey cast iron, ductile cast iron, asbestos cement, fibre cement, PE/PP, PVC, glass fibre reinforced plastics (GRP), steel, liner

Pipe materials new pipe
- PE/PP, PVC, glass fibre reinforced plastics (GRP), ductile cast iron, steel, stoneware, concrete

Soil classes
- Old pipes passable for bursting rods

NODIG system
- GRUNDOBURST
RENEWAL OF SEWER PIPES: MANHOLE–MANHOLE

Method
Bore length
Pipe diameter
Pipe materials old pipe
Pipe materials new pipe
Soil classes
NODIG system

- Static pipe bursting
- Max. 100 m
- Up to 280 mm
- Stoneware, concrete, reinforced concrete, grey cast iron, ductile cast iron, asbestos cement, fibre cement, PE/PP, PVC, glass fibre reinforced plastics (GRP), steel, liner
- PE/PP, PVC, glass fibre reinforced plastics (GRP), ductile cast iron, steel, stoneware, concrete
- Old pipes passable for bursting rods
- GRUNDOBURST 400S

OVERCUTTING OF MANHOLE COVERS (EXCHANGE)

Method
NODIG system
Diameter
Cutting depth
Surface types

- Core drilling
- Core drill units
- Up to 1,500 mm
- Up to 600 mm
- Concrete, Asphalt and mixed surfacing
The expansion of e-mobility plays a key role in reducing climate-damaging greenhouse gases in line with global climate protection targets. However, the acceptance by the consumer of e-mobility depends on a sufficient number of readily available charging stations. Trenchless installation techniques offer intelligent, economical and sustainable solutions for the efficient and low-emission expansion for this charging station infrastructure.

Be e-intelligent
Our clever NODIG systems can be used wherever charging stations can be installed or connected to the power grid. Because you can install pipes and cables in any direction without damaging paved surfaces, our technology is suitable for the installation of charging stations on public and private ground as well as sub-distribution connectivity. If using the innovative keyhole technology, the construction pit also provides the foundation of the charging station. You can’t say that isn’t absolutely e-intelligent.
AT A GLANCE

- Fast and simple underground installation of protection pipes for power and control cables, from the connection point (sub-distribution) to the charging station and between the charging stations
- The technology is equally economical for small or large amounts of individual charging stations
- House connections to power supply of the charging stations can also be installed without trenches
- With the minimally invasive keyhole technique, the construction pit can be used as the foundation of the charging station
- Elaborate, proven and tested system technology

IN DETAIL

NEW PIPE INSTALLATION  52–53
HOUSE CONNECTION TECHNOLOGY  54–57
CABLING OF CHARGING STATIONS  57
E-MOBILITY
NEW PIPE INSTALLATION

PARALLEL BORES

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

Pipe materials
- PE, steel

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs

CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

Pipe materials
- PE, steel

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs
CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

Method
- HDD horizontal directional drilling
- Bore length: Max. 100 m
- Pipe diameter: 32–160 mm
- Pipe materials: PE, steel
- Soil classes: 1–7, acc. to DIN 18324
- NODIG system: GRUNDOPIT fluid-assisted mini drill rigs

CROSSINGS UNDERNEATH TRAFFIC WAYS

Method
- Non-steerable soil displacement method
- Bore length: Max. 25 m
- Pipe diameter: Up to 160 mm
- Pipe materials: PE, PP, PVC (short and long pipes)
- Soil classes: 1–5, displaceable soils
- NODIG system: GRUNDOMAT soil displacement hammers
E-MOBILITY
HOUSE CONNECTION TECHNOLOGY

HOUSE CONNECTION: PIT–PIT

Method
HDD horizontal directional drilling

Bore length
Max. 100 m

Pipe diameter
32–160 mm

Pipe materials
PE, steel

Soil classes
1–7, acc. to DIN 18324

NODIG system
GRUNDOPIT fluid-assisted mini drill rigs

HOUSE CONNECTION: PIT–BASEMENT

Method
HDD horizontal directional drilling

Bore length
Max. 100 m

Pipe diameter
32–160 mm

Pipe materials
PE, steel

Soil classes
1–7, acc. to DIN 18324

NODIG system
GRUNDOPIT fluid-assisted mini drill rigs
HOUSE CONNECTION: PIT–PIT

Method
- Non-steerable soil displacement method

Bore length
- Max. 25 m

Pipe diameter
- Up to 160 mm

Pipe materials
- PE, PP, PVC (short and long pipes)

Soil classes
- 1–5, displaceable soils

NODIG system
- GRUNDOMAT soil displacement hammers

HOUSE CONNECTION: KEYHOLE–BASEMENT

Method
- HDD horizontal directional drilling

Bore length
- Max. 60 m

Pipe diameter
- Up to 90 mm

Pipe materials
- PE (short and long pipes)

Soil classes
- 1–5

NODIG system
- GRUNDOPIT keyhole
**E-MOBILITY**

**HOUSE CONNECTIONS/CABLING OF CHARGING STATIONS**

**HOUSE CONNECTION: BASEMENT–PIT**

**Method**
- HDD horizontal directional drilling

**Bore length**
- Max. 100 m

**Pipe diameter**
- 32–160 mm

**Pipe materials**
- PE, steel

**Soil classes**
- 1–7, acc. to DIN 18324

**NODIG system**
- GRUNDOPIT fluid-assisted mini drill rigs

**HOUSE CONNECTION: BASEMENT–PIT**

**Method**
- Non-steerable soil displacement method

**Bore length**
- Max. 25 m

**Pipe diameter**
- Up to 160 mm

**Pipe materials**
- PE, PP, PVC (short and long pipes)

**Soil classes**
- 1–5, displaceable soils

**NODIG system**
- GRUNDOMAT soil displacement hammers
**HOUSE CONNECTION: BASEMENT–KEYHOLE**

**Method**
- Non-steerable soil displacement method

**Bore length**
- Max. 25 m

**Pipe diameter**
- Up to 160 mm

**Pipe materials**
- PE, PP, PVC (short and long pipes)

**Soil classes**
- 1–5, displaceable soils

**NODIG system**
- GRUNDOMAT soil displacement hammers

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**CABLING: FROM KEYHOLE TO KEYHOLE**

**Method**
- HDD horizontal directional drilling

**Bore length**
- Max. 60 m

**Pipe diameter**
- Up to 90 mm

**Pipe materials**
- PE (short and long pipes)

**Soil classes**
- 1–5

**NODIG system**
- GRUNDOPIT keyhole
PRODUCTIVE WITHOUT TRENCHES
Efficient cross-border pipeline networks are essential to reliably meet the growing global demand for energy. The pipelines for transport from the producer to the distributor are often several thousand kilometres long. The routes required cannot often be planned due to environmental regulations or structural obstacles. With trenchless techniques for installing the pipelines underground, these problems are a thing of the past.

DRILL AND RECOVER
Our NODIG systems permit the productive underground installation of small and large pipelines for the transport of liquids and gases in open areas, plus also for crossing rivers and reservoirs in built-up areas. These systems can also be used to successfully complete complicated steerable bores even under difficult surrounding conditions – keyword “HDD-Assist & -Rescue”.

HIGH-CAPACITY PIPELINE CONSTRUCTION
AT A GLANCE
- Professional installation of protective and product pipes made of plastic or steel along roads and under traffic and waterways
- Non-steerable techniques are suitable for spiral-welded pipes, seamless pipes and pipes with insulation protection
- HDD-Assist & -Rescue techniques for bores in casing pipes, for loosening stuck pipes and extracting drill rods, as well as for salvaging stuck product or protection pipes of any diameter
- Pipeline construction with high economic efficiency and maximum productivity
- Fast and environmentally friendly techniques, quick licensing, high technical safety
- Precise proof and documentation of position and tightness of the new pipelines

IN DETAIL
NEW PIPE INSTALLATION  60
HDD-ASSIST  60–61
HDD-REScue  62–63
CROSSINGS UNDERNEATH TRAFFIC WAYS

Method
- Non-steerable dynamic pipe ramming

Bore length
- Max. 100 m

Pipe diameter
- Up to 4,000 mm

Pipe materials
- Steel

Soil classes
- 1–5

NODIG system
- GRUNDORAM steel pipe rammers

HDD-ASSIST: PULL-BACK ASSIST

Method
- Non-steerable dynamic pipe ramming

Bore length
- Max. 100 m

Pipe diameter
- Up to 4,000 mm

Pipe materials
- Steel

Soil classes
- 1–5

NODIG system
- GRUNDORAM steel pipe rammers
HDD-ASSIST: CONDUCTOR BARREL

Method
- Non-steerable dynamic pipe ramming

Bore length
- Max. 100 m

Pipe diameter
- Up to 4,000 mm

Pipe materials
- Steel

Soil classes
- 1–5

NODIG system
- GRUNDORAM steel pipe rammers

HDD-ASSIST: PROTECTION PIPE RECOVERY

Method
- Non-steerable dynamic pipe ramming

Bore length
- Max. 100 m

Pipe diameter
- Up to 4,000 mm

Pipe materials
- Steel

Soil classes
- 1–5

NODIG system
- GRUNDORAM steel pipe rammers
HDD-RESCUE: DRILL ROD RECOVERY

**Method**
- Non-steerable dynamic pipe ramming

**Bore length**
- Max. 100 m

**Pipe diameter**
- Up to 4,000 mm

**Pipe materials**
- Steel

**Soil classes**
- 1-5

**NODIG system**
- GRUNDORAM steel pipe rammers
HDD-RESCUE: BORE SALVAGE

Method
- Non-steerable dynamic pipe ramming

Bore length
- Max. 100 m

Pipe diameter
- Up to 4,000 mm

Pipe materials
- Steel

Soil classes
- 1–5

NODIG system
- GRUNDORAM steel pipe rammers
RAISE YOUR POTENTIAL
In recent years, the use of wind energy has been greatly developed, making it a significant contribution to power supply worldwide. Its potential for expansion is considered the most economical of all renewable energies. The trenchless installation of the pipes for transporting and distributing the wind energy makes it possible to exploit this great potential in an economically sensible and environmentally friendly manner.

EFFICIENT WIND FARMS

GAIN MORE ENERGY
Whether you generate wind energy on land or at sea: our innovative NODIG systems are suitable for connecting wind power plants onshore and offshore as well as for cabling between individual turbines, or to the power plant. Using flexible techniques, an efficient pipeline network can increase the availability of wind energy with minimum effort. And because the technologies are ecological and emissions are low, the NODIG method can make a valuable contribution to the public acceptance of wind farms technology. A classical win-win situation!
AT A GLANCE

- Underground installation of pipes for the transport of electricity from offshore and onshore wind farms under traffic and waterways, with short or long pipes made of all standard materials
- The ability for connecting pipelines to wind power plants/wind turbines, and the distributor for feeding wind energy into the network, can also be installed without trenches
- Reduced space requirements for the necessary pipeline construction
- Calculable costs for construction and expansion of the pipeline network
- Sustainable techniques with high economic efficiency

IN DETAIL

CONNECTION OF WIND POWER PLANTS/WIND TURBINES 66-67
WIND FARMS
CONNECTION OF WIND POWER PLANTS/WIND TURBINES

CABLING: WIND TURBINE–WIND TURBINE

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

Pipe materials
- PE, steel

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs

CABLING: LAND–OFFSHORE WIND POWER PLANT

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- Up to 710 mm (pipe bundles) for single conductors up to 250 mm

Pipe materials
- PE, steel

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs
CABLING: WIND TURBINE–DISTRIBUTION STATION

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- Up to 710 mm (pipe bundles) for single conductors up to 250 mm
- PE, steel

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs
District heating offers the highest security of supply among all energy sources. The heat generated from fuels and increasingly renewable energies is inexpensive and convenient for the user, yet not available everywhere because economic aspects are decisive in the development of supply areas. Trenchless installation of the transport and supply pipes makes it possible to expand the supply network in an economically and ecologically efficient manner.

With our NODIG systems you bring the medium pipes for water or steam district heating from the generator to the transfer station and from there to the end customer’s supply room – force-fit and without heat loss. Proven and flexible techniques ensure that trenchless installation of insulated plastic pipes works just as quickly, gently and cost-effectively as that of corrugated steel pipes. This is what we understand by efficiency.
AT A GLANCE
- Efficient underground installation of flexible and rigid pipes made of standard materials along roads, under traffic/waterways and flexible bore paths
- Easy parallel installation of the supply and return lines
- Trenchless installation of house connections lines from the transfer station to the building
- Proven and flexible techniques for the safe underground installation of various types of pipes
- Maximum planning and technical safety according to the latest technical standard
- Precise proof and documentation of position and function of the new pipelines

IN DETAIL
NEW PIPE INSTALLATION 70
HOUSE CONNECTION TECHNOLOGY 71
DISTRICT HEATING
NEW PIPE INSTALLATION/HOUSE CONNECTION TECHNOLOGY

PARALLEL BORES

- **Method**: HDD horizontal directional drilling
- **Bore length**: Max. 500 m
- **Pipe diameter**: 32–710 mm
- **Pipe materials**: PE, PP, steel, cast iron
- **Soil classes**: 1–7, acc. to DIN 18324
- **NODIG system**: GRUNDODRILL fluid-assisted HDD rigs

CROSSINGS UNDERNEATH TRAFFIC AND WATERWAYS

- **Method**: HDD horizontal directional drilling
- **Bore length**: Max. 500 m
- **Pipe diameter**: 32–710 mm
- **Pipe materials**: PE, PP, steel, cast iron
- **Soil classes**: 1–7, acc. to DIN 18324
- **NODIG system**: GRUNDODRILL fluid-assisted HDD rigs
HOUSE CONNECTION: PIT–PIT

Method
Non-steerable soil displacement method
HDD horizontal directional drilling

Bore length
Max. 25 m
Max. 100 m

Pipe diameter
Up to 160 mm
32–160 mm

Pipe materials
PE, PP, PVC (short and long pipes)
PE, PP, steel, cast iron

Soil classes
1–5, displaceable soils
1–7, acc. to DIN 18324

NODIG system
GRUNDOMAT soil displacement hammers
GRUNDOPIT fluid-assisted HDD rigs
INNOVATIVE VARIETY
One of the main aims of TRACTO-TECHNIK is to develop versatile NODIG systems that bring maximum benefit to the users. That is why we always keep an eye on the market to find out at an early stage what requirements arise in practical applications. In the search for the best solution, we have developed a broad range repertoire of special trenchless solutions that go beyond the actual pipeline construction.

AWARD-WINNING SOLUTIONS
The spectrum of innovative applications ranges from such obvious variants as the vertical use of drilling rigs for foundation and pile foundations to complex special tools for connecting or reconnecting house connections through a keyhole.
Trenchless tunnels can be optimized by retrofitting with inlet and outlet pipes and ridge protection or by building pipe shields for new tunnels. You can drain slopes, dikes or buildings gently and without vibration. In mining you can flexibly realize vertical wells and horizontal surge drainage systems. You can produce wells for seawater intakes or remediation of contaminated sites even in difficult geological conditions. And in geotechnics you can drill anchor holes to stabilize dams, dikes or rock walls.

All these applications are not only technically innovative but always practical and economical as well. The best proofs of this are individual solutions for project partners such as GDF Suez or SGN which have turned into award-winning products.
FURTHER APPLICATIONS

DRAINAGE CONSTRUCTION (E.G. DYKES, SLOPES, DUMPS)

- **Method**: HDD horizontal directional drilling
- **Bore length**: Max. 500 m
- **Pipe diameter**: 63–710 mm
- **Pipe materials**: PE, PP, steel, cast iron
- **Soil classes**: 1–7, acc. to DIN 18324
- **NODIG system**: GRUNDODRILL fluid-assisted HDD rigs

In drainage construction, drain pipes for stabilising dams, dikes or buildings can be installed easily and without vibration. In geotechnics, anchor holes to stabilize dams, dikes or rock walls can be drilled on target or bores to settle loads, to seal floors or to improve the soil can be carried out.
WELL CONSTRUCTION

Method
- HDD horizontal directional drilling

Bore length
- Max. 500 m

Pipe diameter
- 32–710 mm

Pipe materials
- PE, PP, steel, cast iron

Soil classes
- 1–7, acc. to DIN 18324

NODIG system
- GRUNDODRILL fluid-assisted HDD rigs

In well construction trenchless technologies enable the construction of horizontal wells for seawater intakes or remediation of contaminated sites even in difficult geological conditions or flat waters without the need for a shaft.
FURTHER APPLICATIONS

VERTICAL APPLICATIONS

**Method**
- Foundation and pile foundations, well construction, sheet piling

**NODIG system**
- GRUNDORAM steel pipe rammers
The innovative vertical applications include foundation and pile foundations, e.g. for overhead signs, noise barriers, building securities, the construction of wells as well as sheet piling.
WE ARE
Even after more than 50 years we are passionate about the underground installation and trenchless renewal of pipelines. We are always seeking the perfect solutions and have a fascination for the very latest in innovative technology, we have developed numerous groundbreaking solutions which have played a major role in shaping the industry. Based on innovation, experience and quality, we have become an internationally successful best-in-class manufacturer of special machinery.

COULD YOU BE PASSIONATE FOR SOMETHING YOU CAN’T SEE?

With over 500 employees and competent partners worldwide, we operate in challenging markets in more than 70 countries. That way we ensure fast supply and immediate availability for our customers worldwide – and make them feel at home in the TRACTO-TECHNIK family.
SMART SOLUTIONS WITH ADDED VALUE

Our goal is to offer our customers high-quality products and services that meet the highest environmental standards. In doing so we aim to not only provide reliable technology, but also complex and flexible solutions for sustainable economic success.

Our smart NODIG solutions cover the complete range of trenchless pipeline construction for supply and disposal. Perfectly matched accessories and tailor-made consulting services go hand in hand at TRACTO-TECHNIK. And because we think out of the box, we use our global network to convey on-target industrial intelligence which enables you as client, planner or user to create maximum value.
WHAT CAN WE DO FOR YOU?

MAKE USE OF OUR KNOWLEDGE
Based on our profound industry knowledge, we offer you as a supplier, network operator or planner comprehensive services and consulting tailored specifically to your requirements.

EXHIBITIONS & EVENTS
We exhibit at national and international trade fairs and industry events. You can find an up-to-date timetable of the trade fairs and exhibitions we will be exhibiting on our website.

PRESENTATION & INFORMATIVE VISITS
We would be happy to explain the possibilities and techniques of our NODIG equipment and machinery with a personal visit to your premises, or you can visit us in Bedford.

TRAINING
We offer you a wide range of basic and advanced training courses with around 3,000 participants per year, also in cooperation with competent partners from the pipeline construction industry. Details & dates on our website.

TENDERS
We would be pleased to support you in the preparation of tender documents for your specifications. Details will be on our website soon.

TECHNICAL LITERATURE
We recommend the trade books "HDD Practice Handbook" and "Handbook of Pipe Bursting Practice" to get an exact picture of the possibilities and applications.
TAILOR-MADE SYSTEM PARTNERSHIPS
As a supplier, we offer you a wide range of system partnerships that are entirely tailored to your individual situation and wishes.

TRACTUELL
In our customer magazine TRACTUELL you will find numerous application reports about successful projects with trenchless technologies from all over the world. We will be happy to send you your personal copy.

GEOSERVICES
We are there for you – with planning and drilling-related advice against the background of soil conditions, for example in the course of planned HDD bore routes.

MACHINE PARK OWNERS
If you operate your own machinery as a supplier, you can use our machines and equipment for your trenchless construction measures after appropriate instruction.

EXTERNAL SERVICE PROVIDERS
If you cooperate with an external contractor for your construction projects, they can add appropriate trenchless technology to their machinery and use it for you.

RECOMMENDATIONS
We are happy to recommend construction companies that have both the technology and the experience to carry out your trenchless construction projects.

DEMONSTRATIONS
We are happy to arrange demonstration construction sites so you can see for yourself the principles of operation in practice and how efficiently trenchless technologies work.
QUALITY MADE BY TRACTO-TECHNIK
With our precisely matched NODIG systems we cover all requirement profiles of trenchless pipeline construction. Our mole technology has proven itself thousands of times worldwide in decades of use, is robust and durable. To make sure that you can rely one hundred percent on it, we produce exclusively in Germany and use the most modern industrial engineering methods as well as elaborate hardening and tempering techniques. And of course we put our machines through their paces during the production process. When it comes to quality, we never compromise.

OUR PRODUCTS FOR YOUR SUCCESS

- **GRUNDOMAT** soil displacement hammers: non-steerable pipe installation ND 25 to 200 mm
- **GRUNDORAM** horizontal rammers: non-steerable steel pipe driving up to ND 4,000 mm
- **GRUNDOPIT** mini fluid-assisted drill rigs: steerable bores up to ND 200 mm and keyhole technology
- **GRUNDODRILL** fluid-assisted HDD drill rigs: steerable bores up to ND 710 mm
- **GRUNDOBORE** auger boring rigs: pilot pipe jacking up to ND 400 mm
- **GRUNDOBURST** static pipe bursting: static pipe renewal up to ND 1,200 mm
- **GRUNDOCRACK** dynamic pipe bursting: dynamic pipe renewal up to ND 500 mm
GRUNDOBORE
SOIL DISPLACEMENT HAMMERS

GRUNDORAM
STEEL PIPE RAMMERS

GRUNDOBURST
STATIC PIPE BURSTING SYSTEMS

GRUNDOCRACK
DYNAMIC PIPE BURSTING SYSTEMS

GRUNDOPIT
MINI FLUID-ASSISTED DRILL RIGS

GRUNDOBORE
AUGER BORING UNITS

GRUNDOBORE
STEERABLE

GRUNDOBURST
STATIC PIPE BURSTING SYSTEMS

GRUNDOCRACK
DYNAMIC PIPE BURSTING SYSTEMS

GRUNDOPIT
MINI FLUID-ASSISTED DRILL RIGS

GRUNDOBORE
AUGER BORING UNITS

GRUNDOBURE
STEERABLE

GRUNDOBURST
STATIC PIPE BURSTING SYSTEMS

GRUNDOCRACK
DYNAMIC PIPE BURSTING SYSTEMS

GRUNDOPIT
MINI FLUID-ASSISTED DRILL RIGS

GRUNDOBORE
AUGER BORING UNITS

GRUNDOBURE
STEERABLE

GRUNDOBURST
STATIC PIPE BURSTING SYSTEMS

GRUNDOCRACK
DYNAMIC PIPE BURSTING SYSTEMS

GRUNDOPIT
MINI FLUID-ASSISTED DRILL RIGS

GRUNDOBORE
AUGER BORING UNITS