37TH INTERNATIONAL NO-DIG FLORENCE 2019

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TRENCHLESS SOLUTIONS FOR THE INSTALLATION OF GAS DISTRIBUTION NETWORKS

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Application Overview

Application Overview

- Gas supplies 22% of the energy used worldwide
- Gas makes up nearly a quarter of the worldwide electricity generation
- Gas is playing a crucial role as a feedstock for industry
- Gas is on the rise
- Gas consumption is expected to grow at an average annual rate of 1,6% to 2024
- Gas consumption is forecasted to grow in almost all regions

Source of information: International Energy Agency, Gas 2019, Ececutive Summary, Analysis and forecast to 2024

Application Overview

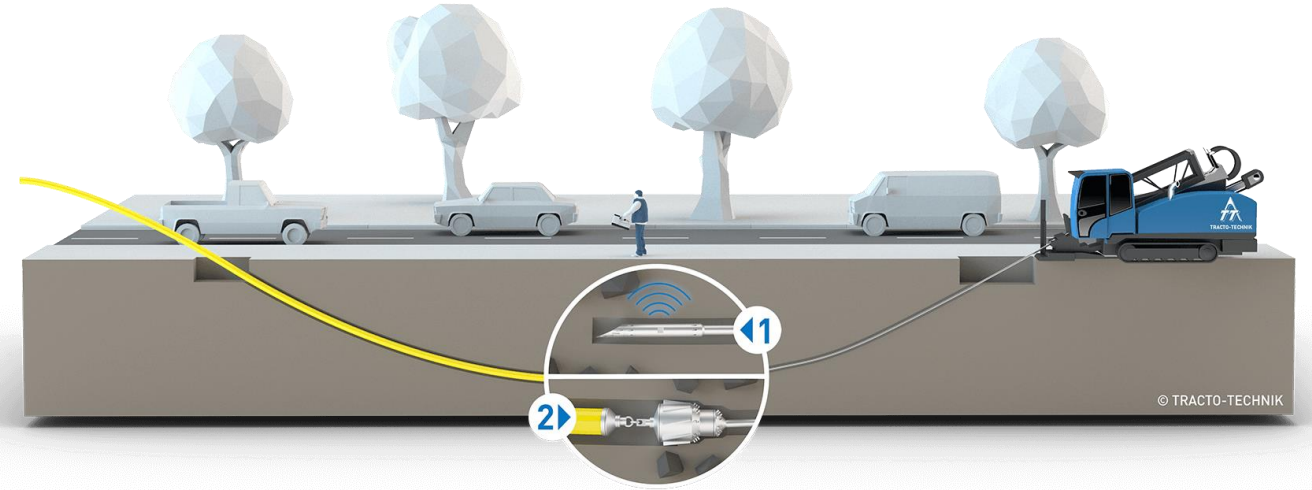
Installation of gas distribution networks

Installation of gas house connections

Renewal of existing gas networks

Installation of gas distribution networks

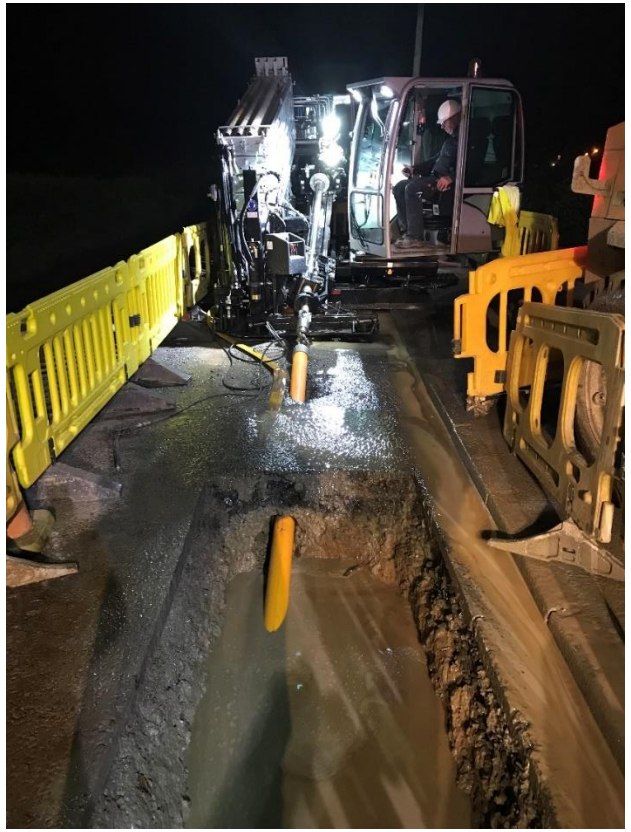
Parallel bores



Method	HDD horizontal directional drilling
Bore length	Max. 500 m
Pipe diameter	32–710 mm
Pipe materials	PE, PA12, steel (media or protection pipes)
Soil classes	1–7, acc. to DIN 18324
Nodig system	GRUNDODRILL fluid-assisted HDD rigs

Installation of gas distribution networks

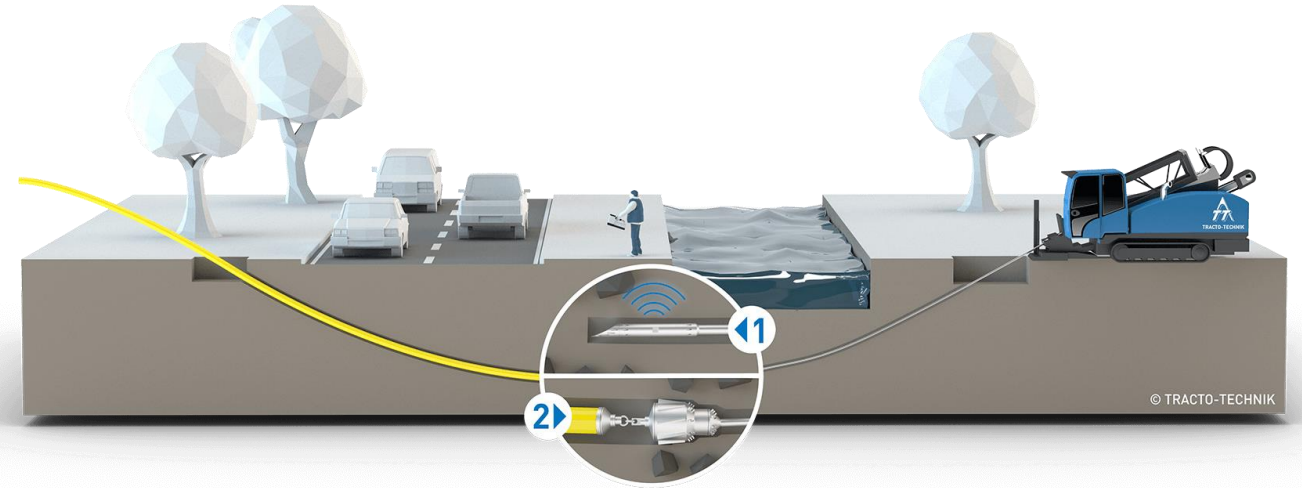
Parallel bores



- Project for Phoenix Naturals Gas in Northern Irland, South of Beflast in 2017
- Installation of 2 gas pipelines DN 125 on a length of 185 m
- Soil conditions: massiv rock and below the rock slate sandstone

Installation of gas distribution networks

Crossings underneath trafic- and waterways



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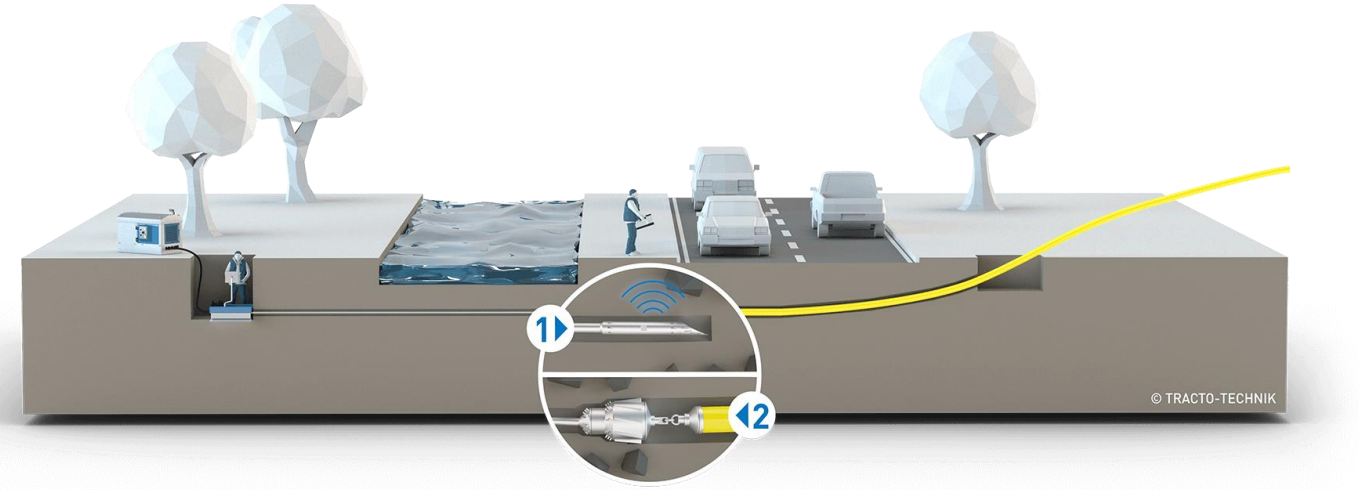
Installation of gas distribution networks

Crossings underneath trafic- and waterways

- Project for Stadtwerke Greven in Germany under the river of Ems in 2016
- Installation of a pipe bundle: high pressure pipe DN 150, a smaler pressure medium pipe and 2 empty pipes
- Installation length 120 m, expansion in three steps up to DN 420
- Soil conditions: mainly sandy soil

Installation of gas distribution networks

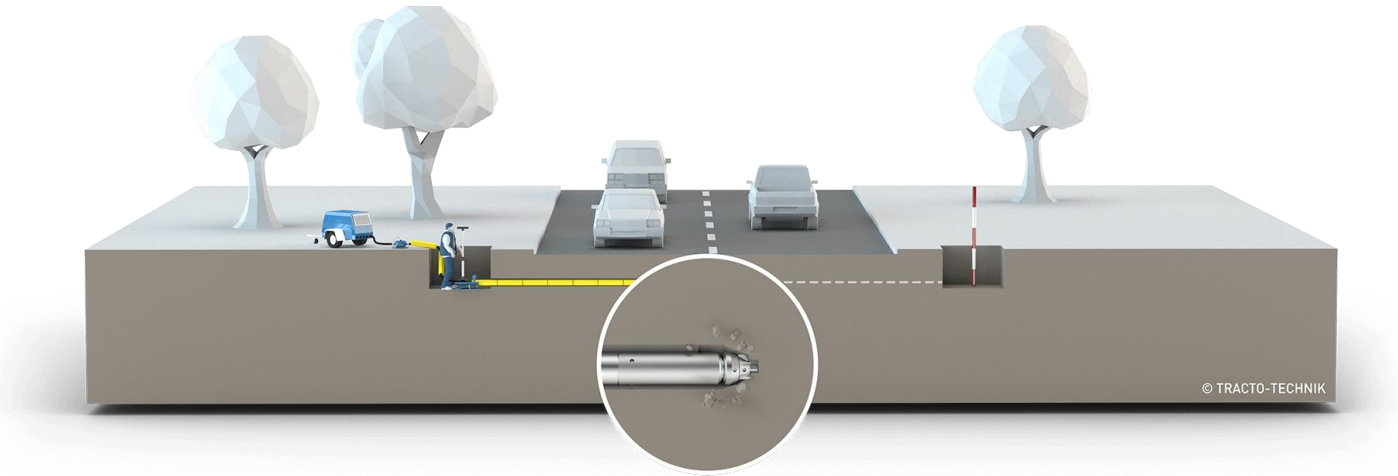
Crossings underneath trafic- and waterways



Method	HDD – PIT start
Bore length	Max. 100 m
Pipe diameter	32–160 mm
Pipe materials	PE, PA12, steel (media or protection pipes)
Soil classes	1–7, acc. to DIN 18324
Nodig system	GRUNDOPIT fluid-assisted mini drill rigs

Installation of gas distribution networks

Crossings underneath traficways



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

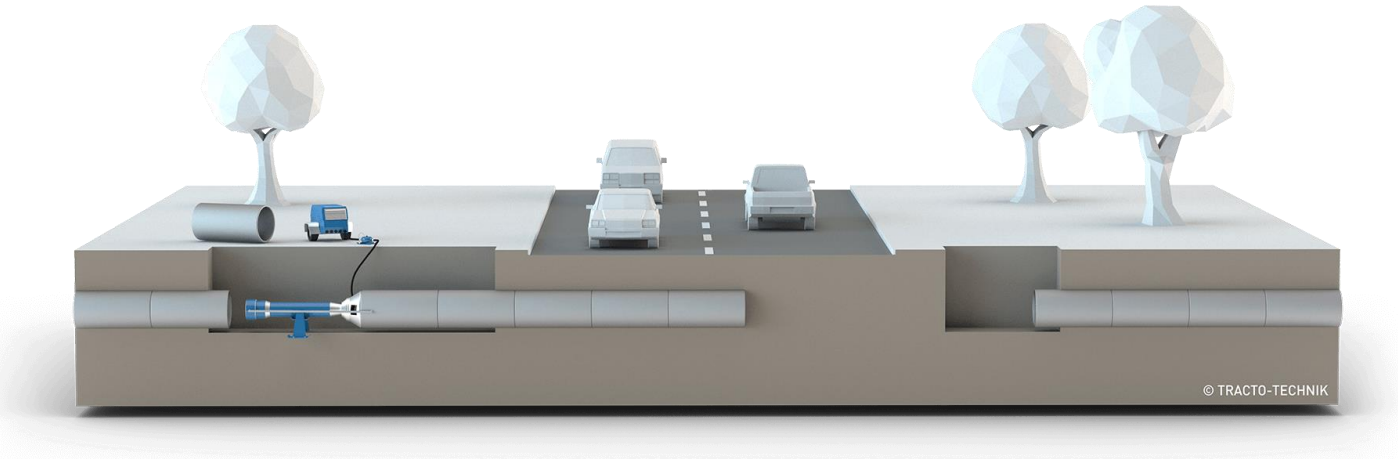
Installation of gas distribution networks

Crossings underneath traficways

- Projekt in the USA with a GRUNDOMAT 65
- Installation of a gas pipe DN 55
- Installation length 8 m

Installation of gas distribution networks

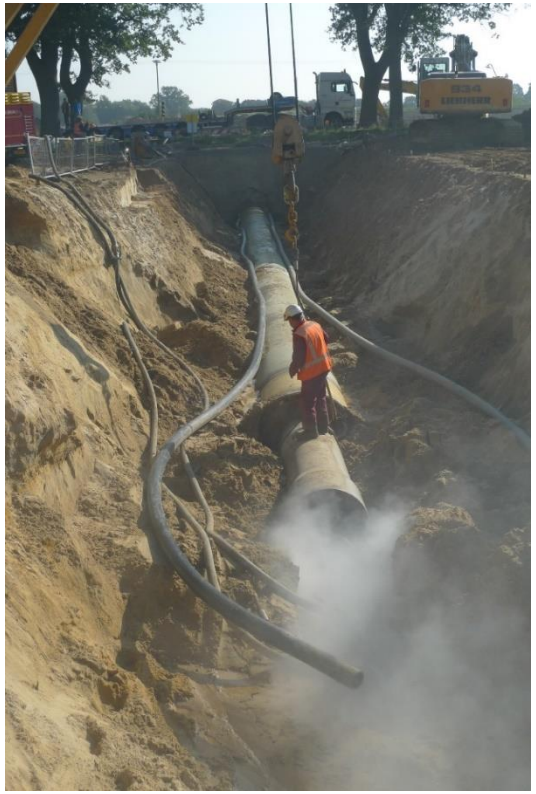
Crossings underneath trafficways



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

Installation of gas distribution networks

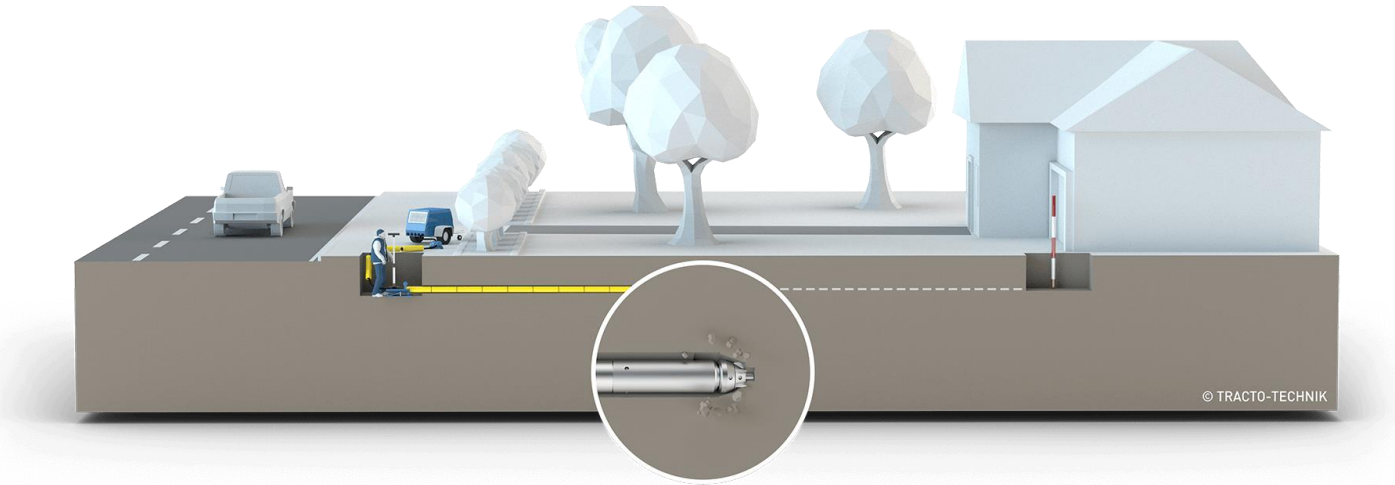
Crossings underneath trafficways



- Projekt NEL pipeline 2012 in the Northern part of Germany
- Installation of a PE coated steel pipes, DN 1420
- 3 crossings with 34, 40 and 44 m with a GRUNDORAM Apollo
- Soil conditions: hard sandy soil

Installation of gas house connections

Pit to Pit



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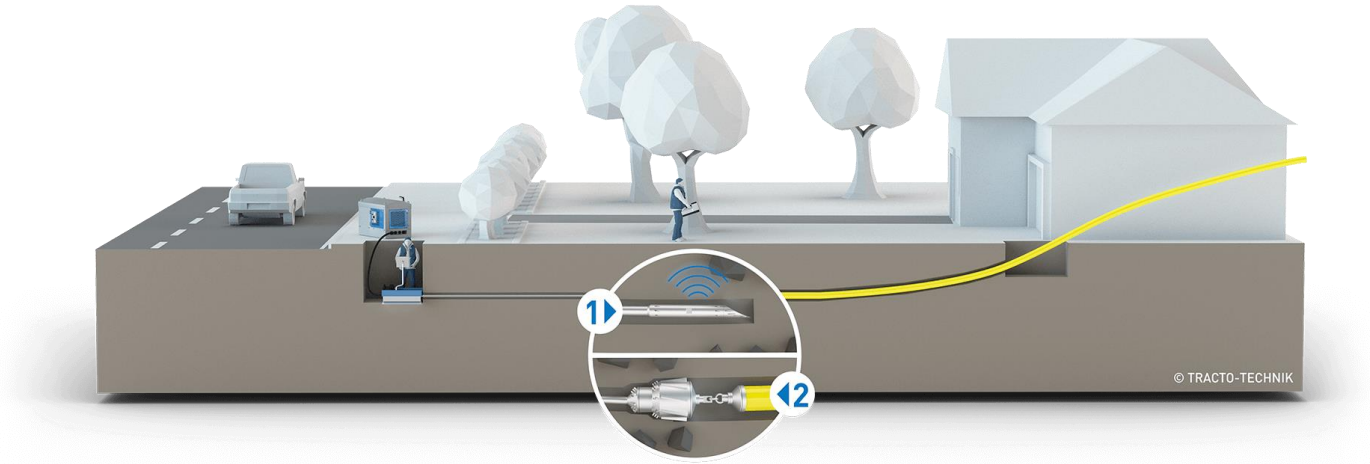
Installation of gas house connections

Pit to Pit



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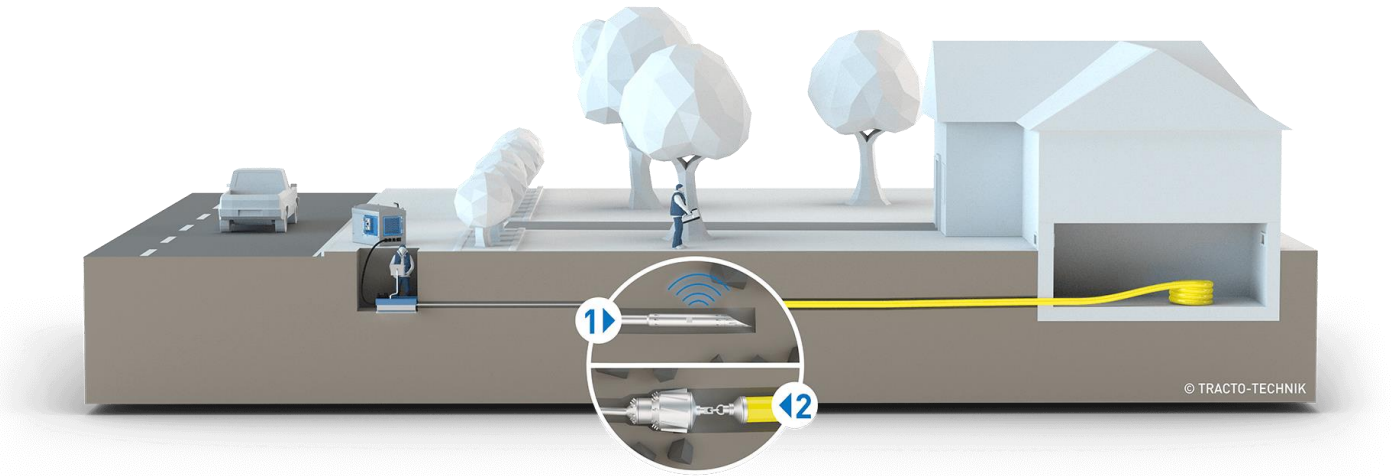
Installation of gas house connections

Pit to Basement



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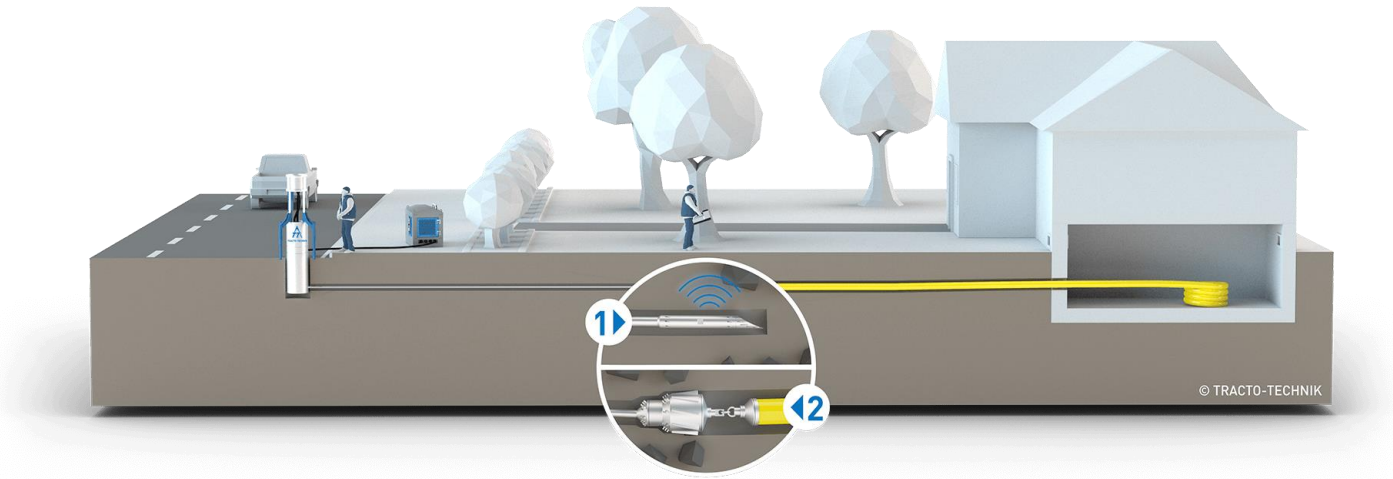
Installation of gas house connections

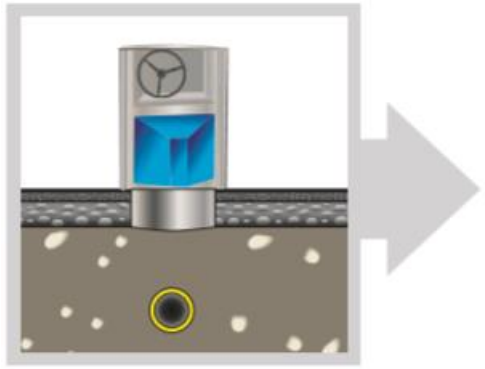
Keyhole (round pit) to Basement



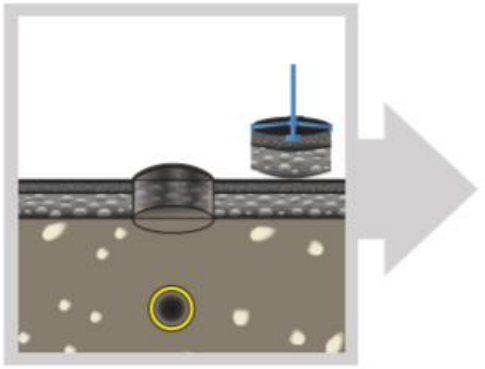
Method	HDD horizontal directional drilling
Bore length	Max. 60 m
Pipe diameter	Up to 90 mm
Pipe materials	PE (short and long pipes)
Soil classes	1–5
Nodig system	GRUNDOPIT keyhole

Installation of gas house connections

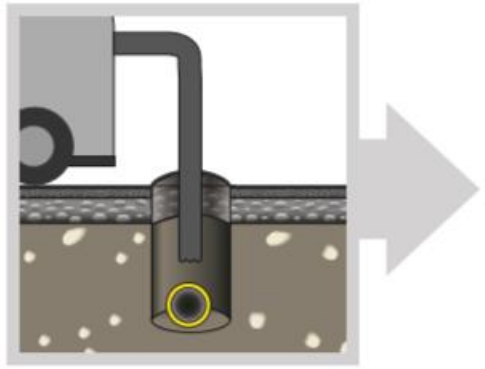
Keyhole (round pit) to Basement



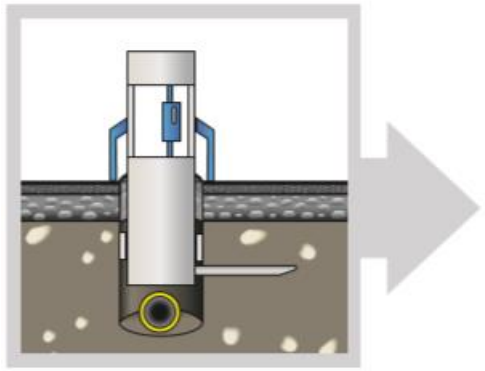
Creating the core bore with core drill unit by TRACTO-TECHNIK



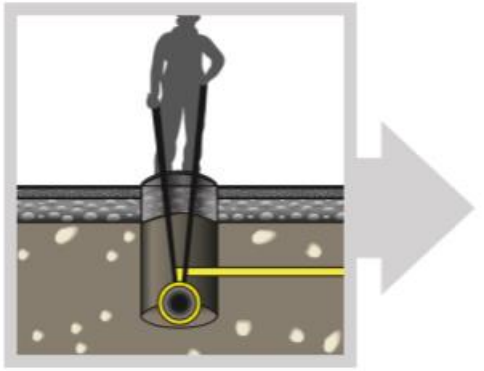
Removing the core



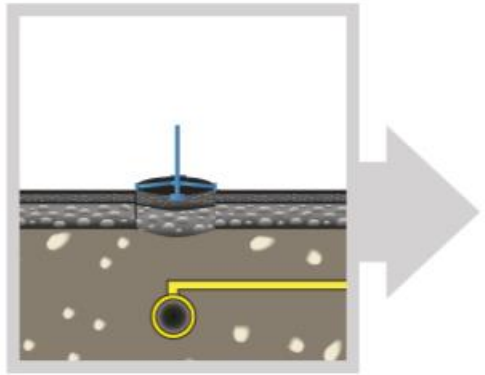
Extracting the keyhole



HDD drilling and pipe pulling with GRUNDOPIT KS50 by TRACTO-TECHNIK



Installation work with Long Hand-led Toolings (LHT) by TRACTO-TECHNIK



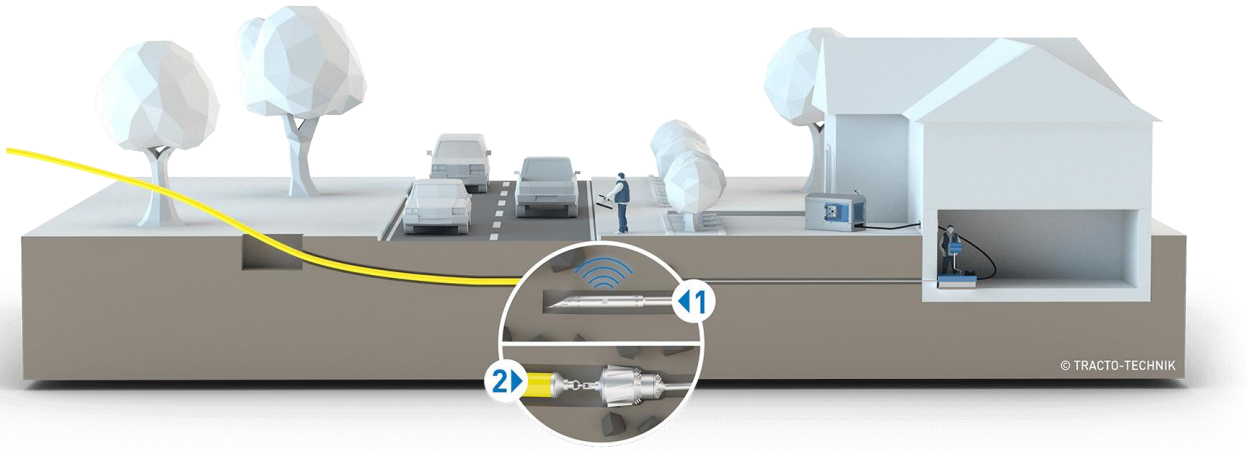
Reinstatement

Installation of gas house connections

Keyhole (round pit) to Basement

Installation of gas house connections

Basement to Pit



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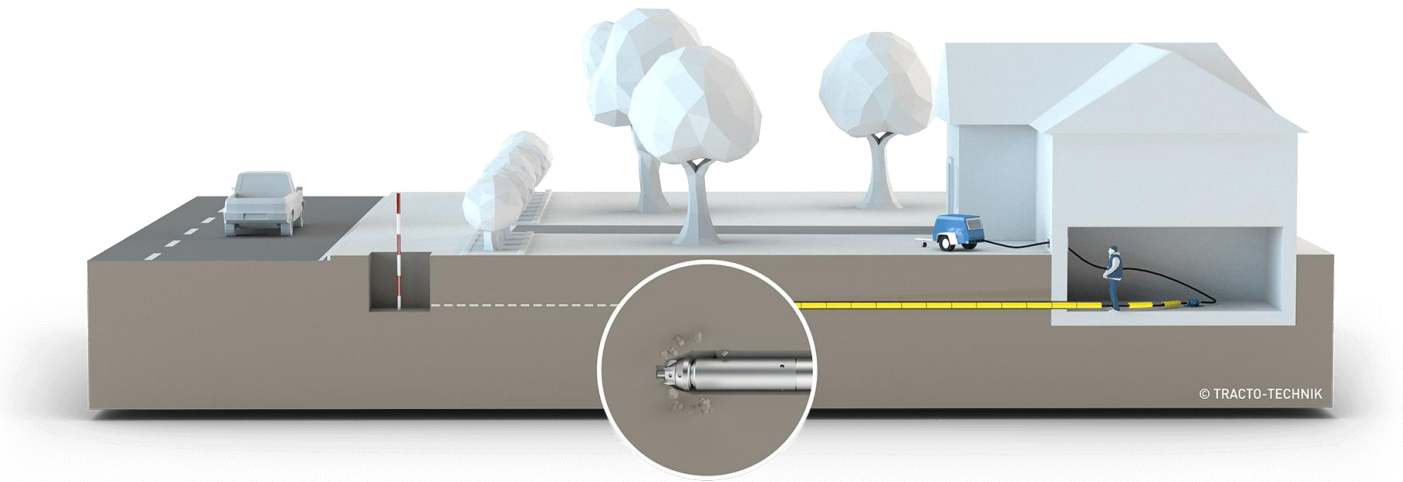
Installation of gas house connections

Basement to Pit



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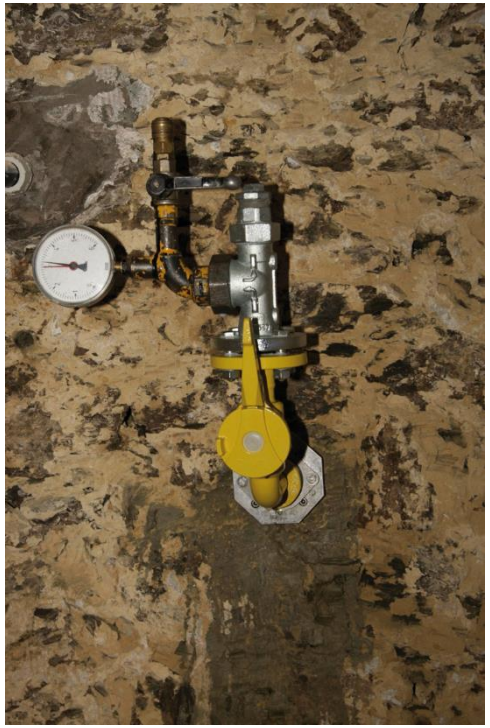
Installation of gas house connections

Basement to Pit



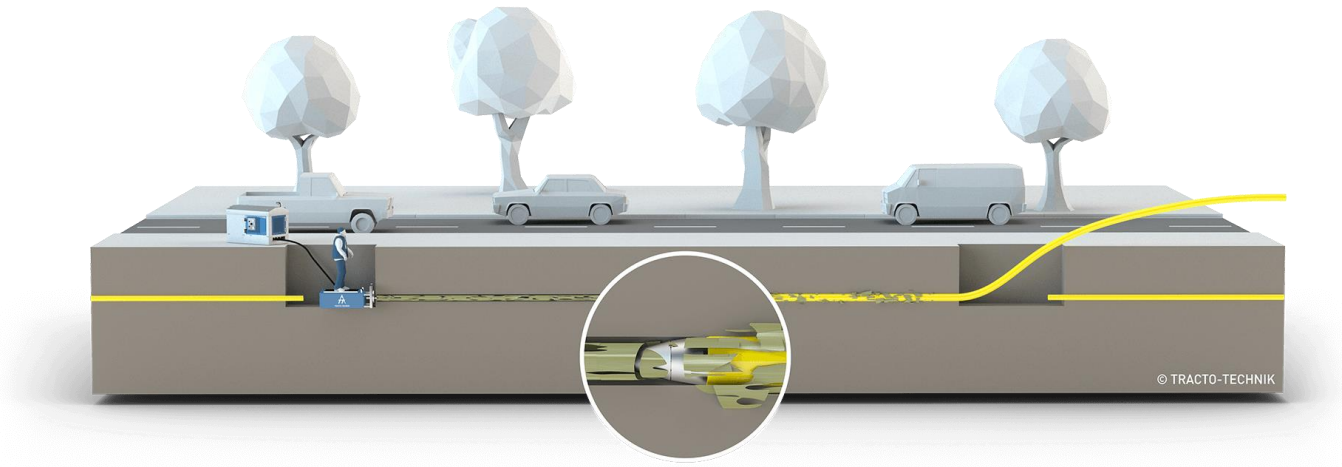




- Project in Bavaria, Germany with GRUNDOMAT 95
- Installation of a protection short pipe DN 75 + medium pipe DN 35, core drilling 100 mm
- Installation length 12 m
- Building entry system from Hauff Technik Germany

Renewal of existing gas networks

Static pipe bursting from PIT to PIT

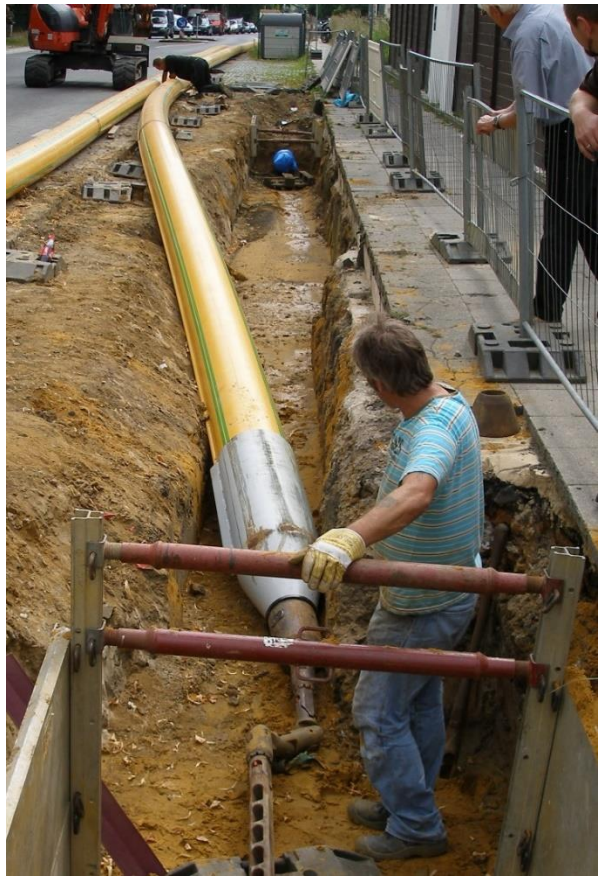


Method	Static pipe bursting
Bore length	Max. 300 m
Pipe diameter	50–1,200 mm
Pipe materials old pipe	Stoneware, concrete, stoneware-concrete, steel, grey cast iron, PE/PP, PVC, GRP, AC/FC, liner
Pipe materials new pipe	PE/PP, PA12, steel, PVC, grey cast iron, stoneware, PC, stoneware-concrete
Soil classes	Old pipes passable for bursting rods
Nodig system	GRUNDOBURST static pipe bursting systems

- Installation of pipes with smaller, equal or larger diameter in the same line

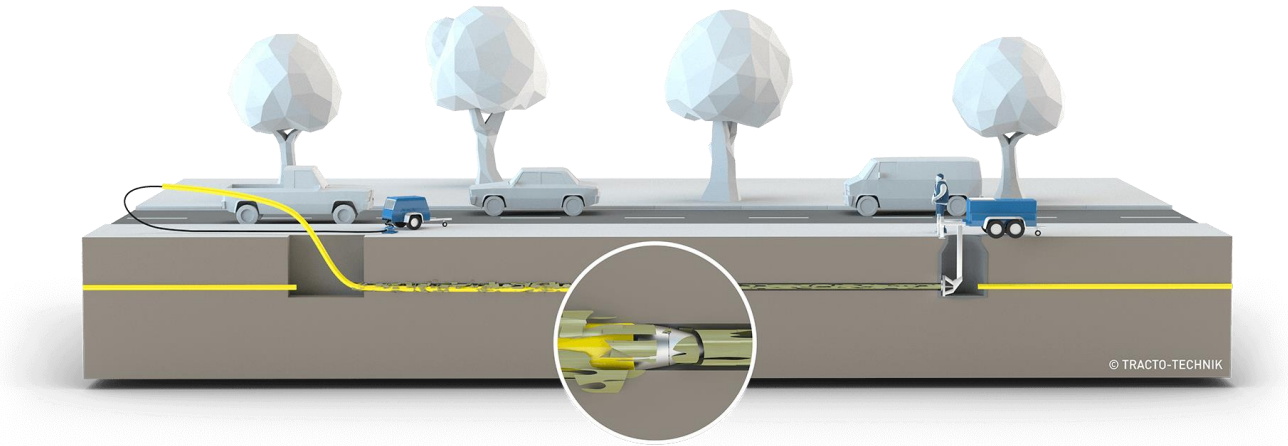
Renewal of existing gas networks

Static pipe bursting



Renewal of existing gas networks

Dynamic pipe bursting from PIT to PIT



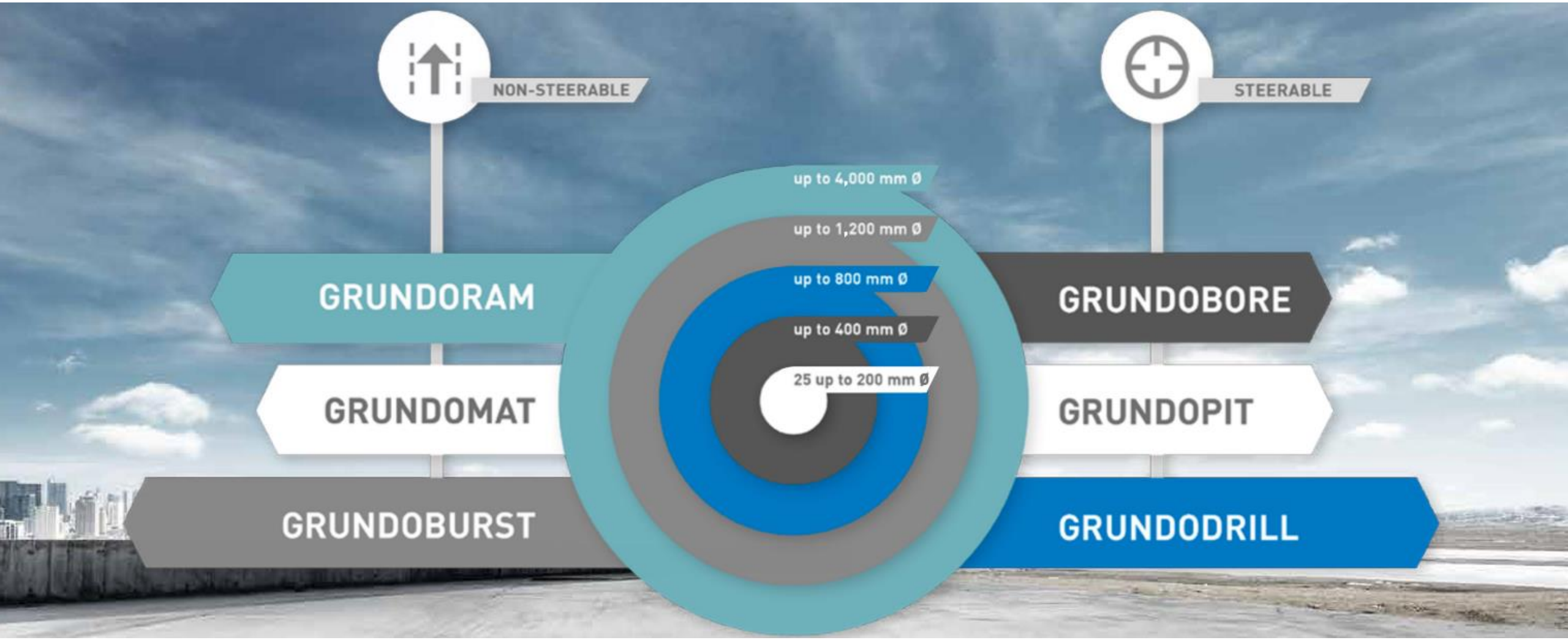
Method	Dynamic pipe bursting
Bore length	Max. 300 m
Pipe diameter	Up to 508 mm
Pipe materials old pipe	Stoneware, concrete, stoneware-concrete, GG, PVC, AC/FC
Pipe materials new pipe	PE/PP, PA12, steel, PVC
Soil classes	Old pipes passable for winch rope
Nodig system	GRUNDOCRACK

- The machine is a modified Rammer working in combination with a winch.
- The old pipe will be destroyed by dynamic impact energy, guided by the winch rope.

Advantages of Trenchless

- Minimal emissions for CO^2 (50% less), fine dust (100% less) and noise due to minimal earth and construction vehicle movement
- The traffic is hardly obstructed (low space requirement)
- Valuable surfaces and resources are preserved (only small openings for start and target pit)
- Tree protection (no destruction of roots)
- Residents are not bothered (positive urban life quality effect)
- Short construction times
- Costs savings up to 30-40% in comparison to a open cut method (depending on the project)

The right technology for every application



We have to become Trenchless Ambassadors