TRACTO-TECHNIK

TRENCHLESS & INNOVATIVE

INTELLIGENT NODIG SYSTEMS

PRODUCT SURVEY

THE RIGHT NODIG TECHNOLOGY FOR EVERY APPLICATION

As a pioneer of trenchless technology, we have always been enthusiastic about the development and production of clever and innovative solutions for the underground installation and trenchless renewal of pipelines. The fundamental economic and ecological advantages of the NODIG technology, compared to open construction methods are obvious: valuable surfaces are being preserved, time-consuming excavation and restoration work is omitted, there are no traffic jams, no diversions, only low emissions and the actual construction times are significantly shortened.

The mole technology from TRACTO-TECHNIK in particular stands for uncompromising quality and technical sophistication down to the last detail. However, our passion for the optimal solution goes far beyond that.

Our durable and flexible NODIG systems are designed for maximum product and application diversity, low wear and tear as well as maximum reliability in practical use. Innovative technical solutions and a comprehensive selection of clever accessories guarantee the greatest possible productivity and maximum economic efficiency when installing pipes.

Our product range covers the complete range of trenchless pipeline construction for supply and disposal including house connection technology. On the following pages, you will learn how you can master your complex tasks more easily and quickly with our smart NODIG systems.

NODIG PRODUCT VARIETY

GRUNDOMAT
SOIL DISPLACEMENT HAMMERS | 04–09

GRUNDODRILL
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GRUNDOMAT – THE NEW GENERATION

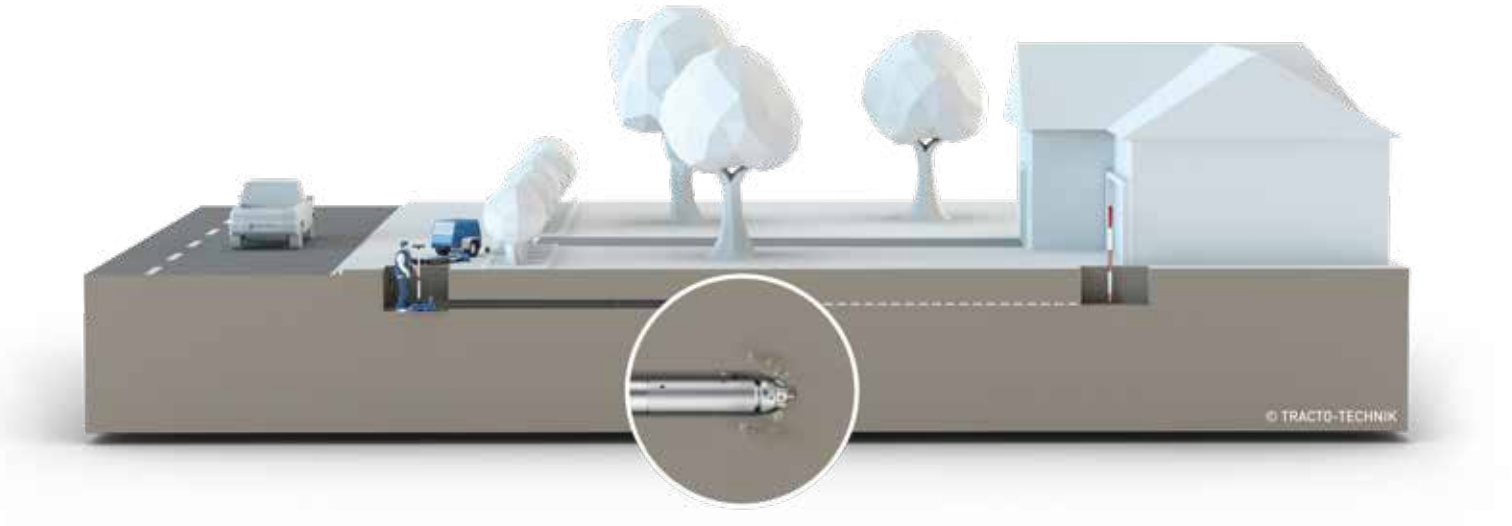
The Original since 1970
GRUNDOMAT
Made in Germany

The pneumatically driven hammers work according to the soil displacement method. When moving forward the spoil is displaced into the surrounding soil. That way a channel is produced, into which short pipes with smooth sockets, or long pipes made of plastic (PE, PVC or PE-X) up to OD 160 or cables are pulled in. Depending on the type of soil, lengths up to 25 m can be either pulled in directly or later on. For operation, a compressor with 6 - 7 bar operating pressure is required.

For more than five decades, the GRUNDOMAT soil displacement hammers stand for on-target underground pipe installation. Their high target accuracy is due to the 2-stroke principle. With this proven concept, the piston initially strikes the chisel, which advances forward in order to produce the bore hole and to destroy any obstacles along the way. The casing is impacted in the second stroke and pulled in with the pipe attached. That way peak resistance and casing friction are separated and alternately easier to overcome. This makes the GRUNDOMAT work dead on target even in stony grounds. The optimised design of the new GRUNDOMAT generation convinces with new technical solutions, which further improve durability and minimise time and service effort. The variety of applications for the soil displacement hammer is also retained and new options, such as servo- control for small machine sizes, simplify handling.

GRUNDOMAT

SOIL DISPLACEMENT HAMMERS

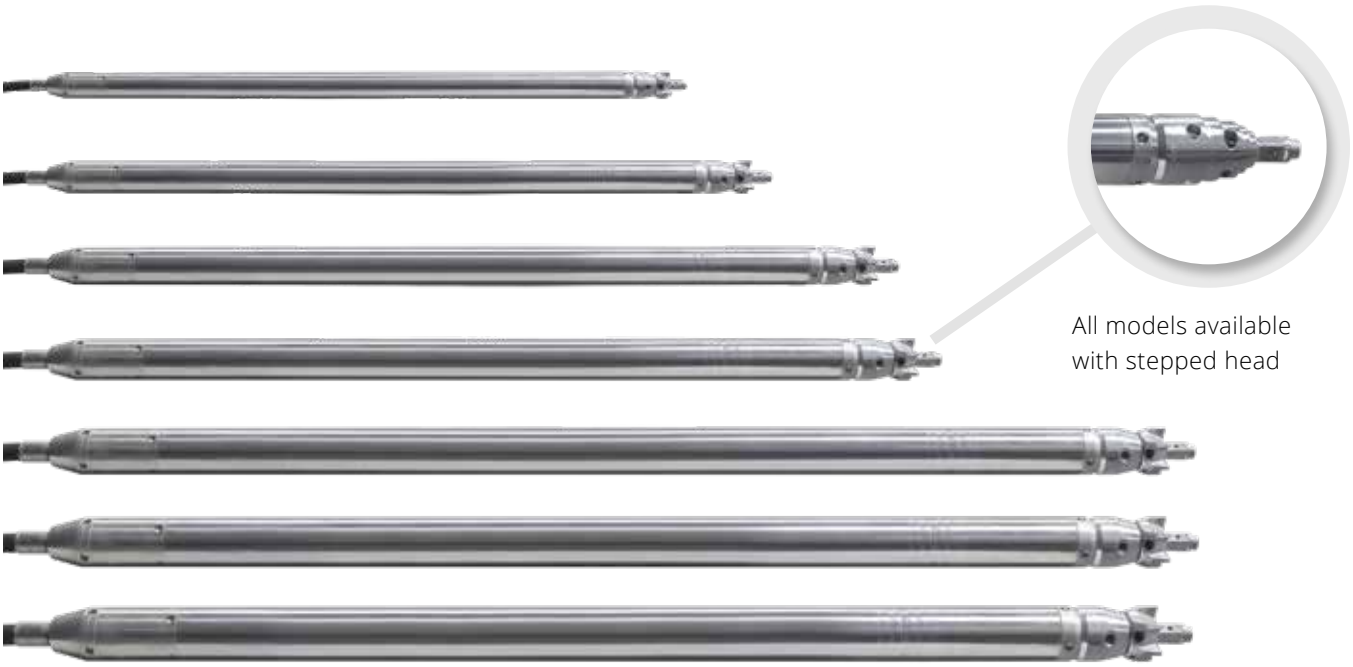


APPLICATION RANGE

- Property service connections
- Undercrossings

SPECIAL APPLICATIONS

- Pipe ramming (from type 130 on)
- Dynamic pipe renewal (from type 95 on)
- Extraction of steel pipes
- Pile foundations



All models available with stepped head

GRUNDOMAT

FEATURES

- 2-stroke-principle for high aiming accuracy
- Available with stepped head or crowned head
- Robust and low-wear design for long-lasting peak performance
- Service-friendly construction with only one-sided machine closure
- Versatile mounting options for a broad range of applications
- Alternatively available with hose or servo control for user-friendly jobsite applications
- Operator safety packages available

MACHINE	Ø mm	Ø in	Length mm	Length in	Hose	Servo	Max. pipe Ø mm	Max. pipe Ø in
GRUNDOMAT 45	45	1.8	979	38.5	x		32	1.3
GRUNDOMAT 55	55	2.2	1.108	43.6	x		40	1.6
GRUNDOMAT 65	65	2.6	1.328	52.3	x	x	50	2.0
GRUNDOMAT 75	75	3.0	1.399	55.1	x	x	63	2.5
GRUNDOMAT 95	95	3.7	1.762	69.4	x	x	85	3.3
GRUNDOMAT 110	110	4.3	1.751	68.9	x	x	90	3.5
GRUNDOMAT 130	130	5.1	1.740	68.5	x	x	110	4.3

Data subject to change

All models available with stepped head

GRUNDOMAT SHORT VERSION

FEATURES

- Same as standard version
- Shortened overall length for use in confined spaces
- Particularly suitable for short bore lengths
- Reduced machine weight for easier handling

MACHINE	Ø mm	Ø in	Length mm	Length in	Hose	Servo	Max. pipe Ø mm	Max. pipe Ø in
GRUNDOMAT S45	45	1.8	894	35.2	x		32	1.3
GRUNDOMAT S65	65	2.6	1.097	43.2	x	x	50	2.0
GRUNDOMAT S75	75	3.0	1.295	51.0	x	x	63	2.5
GRUNDOMAT S95	95	3.7	1.393	54.8	x	x	85	3.3
GRUNDOMAT S110	110	4.3	1.548	60.9	x	x	90	3.5
GRUNDOMAT S130	130	5.1	1.604	63.1	x	x	110	4.3

Data subject to change

GRUNDOMAT P

FEATURES

- 2-stroke principle for maximum aiming accuracy and powerful propulsion
- Available with stepped head
- Robust and low-wear design for long-lasting peak performance
- Proven a thousand times
- Wide range of mounting options for a wide variety of applications
- Operator safety packages available

MACHINE	Ø mm	Ø in	Length mm	Length in	Hose	Servo	Max. pipe Ø mm	Max. pipe Ø in
GRUNDOMAT 45P	45	1.8	979	38.5	x		32	1.3
GRUNDOMAT 55P	55	2.2	1.103	43.4	x		40	1.6
GRUNDOMAT 65P	65	2.6	1.323	52.1	x		50	2.0
GRUNDOMAT 75P	75	3.0	1.443	56.8	x		63	2.5
GRUNDOMAT 85P	85	3.3	1.540	60.6	x		75	3.0
GRUNDOMAT 95P	95	3.7	1.732	68.2	x		85	3.3
GRUNDOMAT 110P	110	4.3	1.685	66.3	x		90	3.5
GRUNDOMAT 130P	130	5.1	1.750	68.9	x	x	110	4.3
GRUNDOMAT 145P	145	5.7	1.986	78.2		x	125	4.9
GRUNDOMAT 160P	160	6.3	2.002	78.8		x	140	5.5
GRUNDOMAT 180P	180	7.1	2.221	87.4		x	160	6.3

Data subject to change

GRUNDOMAT P SHORT VERSION

FEATURES

- Same as standard version
- Shortened overall length for use in confined spaces
- Reduced machine weight for easier handling

MACHINE	Ø mm	Ø in	Length mm	Length in	Hose	Servo	Max. pipe Ø mm	Max. pipe Ø in
GRUNDOMAT 65PK	65	2.6	1.029	40.5	x		50	2.0
GRUNDOMAT 75PK	75	3.0	1.243	48.9	x		63	2.5
GRUNDOMAT 85PK	85	3.3	1.350	53.1	x		75	3.0
GRUNDOMAT 95PK	95	3.7	1.532	60.3	x		85	3.3
GRUNDOMAT 130PK	130	5.1	1.300	51.2	x	x	110	4.3

GRUNDODRILL

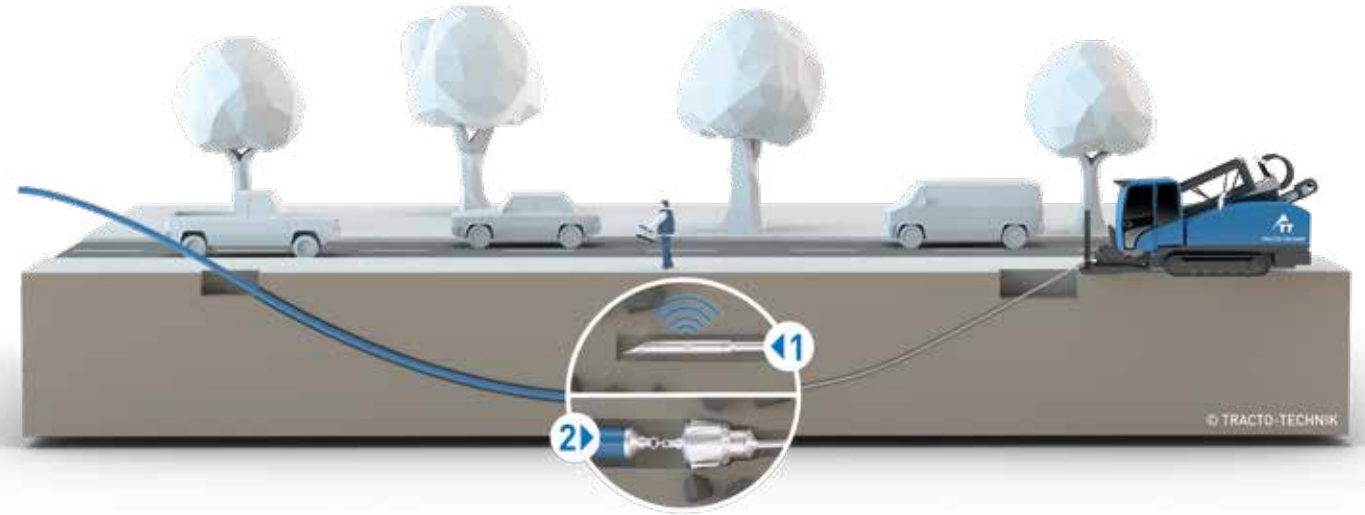
FLUID-ASSISTED HDD RIGS

GRUNDODRILL – THE NEW GENERATION

The ground-breaking concept of the new GRUNDODRILL generation allows for utmost flexibility and maximum productivity in horizontal directional drilling. The complete series with six models in the performance classes from 60 to 280 kN can be used as a Jet Condition System (JCS) with customary rods in conventional soils or as an All Condition System (ACS) with twin-tube rods in complex geologies and rock.

The modular construction for different machine sizes and a multitude of options allow the user to configure his bore rig from this kit according to his individual requirements. Thanks to the trend-setting combination of innovative technology and maximum digitalisation, this is easier than you think - or "simple & easy" as we say.

- Flexible modular concept
- Maximum number of options
- Productive peak performance
- Rock drilling in all performance classes
- Intuitive operating concept
- Remote controlled drilling
- Digital Solutions



APPLICATION RANGE

- Undercrossings
- Longitudinal bores
- Installation of the protection pipes
- Rock drilling

SPECIAL APPLICATIONS

- Horizontal drinking water wells
- Irrigation and drainage
- Geotechnical applications
- And much more

MAX MAXIMUM PRODUCTIVITY IN ALL PERFORMANCE CLASSES

GRUNDODRILL JCS130

FEATURES

- JCS – Jet Condition System – for drilling in loose rock
- Cummins engine Tier 5, 100 kW
- Variable torque and speed adjustment for maximum rotational performance and maximum productivity at any speed
- Fully automatic drilling operation incl. drill rod exchange and all other secondary activities
- Comfort operator's cabin*1 incl. Grammer comfort seat (with air suspension*1), central locking, electronic immobiliser, heating, air conditioning*1 or automatic climate control*1, radio, hands-free equipment, bottle cooler
- Powerful Bentonite HD pumps on board – full flow at maximum pressure for highest productivity
- Innovative and intuitive operating concept, radio remote control for remote-controlled drilling*1
- Compatible with all digital solutions by TRACTO-TECHNIK
- Numerous other options available

TECHNICAL DATA

DRILL ROD TYPE EL D67

		metric		imperial	
Thrust and pullback force		130	kN	29,225	lbf
Max. torque		4.500	Nm	3,320	lbf ft
Max. spindle speed		185	U/min	185	rpm
HP Bentonite pump P62 (P72 optional)		190 (320) *1	l/min	50 (85) *1	cfm
Rod magazine content		168	m	551	ft
Pilot bore Ø	100		mm	4.00	in
Min. bore radius		32	m	105	ft
Max. engine output		100	kW	136	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤		500/400	mm	20/16	in
Bore length* ≤		300	m	984	ft
Length x Width x Height (transport position)*2	7.040 x 1.850 x 2.660		mm	277 x 72.8 x 104.7	in
Max. weight*2		tbd	kg	tbd	lbs

* Depending on soil | *1 Option | *2 Depending on configuration | Data subject to change

MAX MAXIMUM PRODUCTIVITY IN ALL PERFORMANCE CLASSES

GRUNDODRILL ACS130

FEATURES

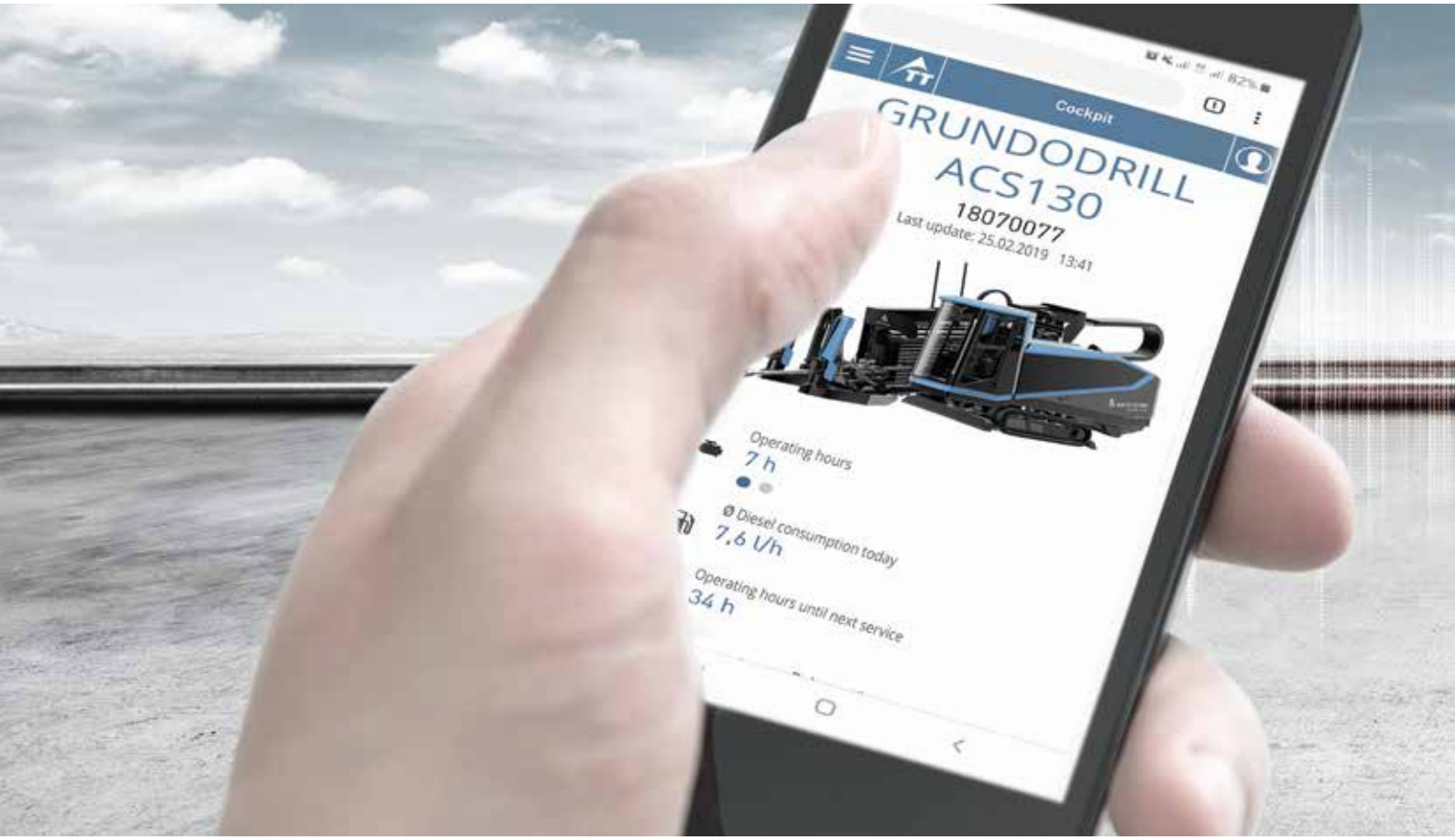
- ACS – ALL CONDITION SYSTEM – for drilling in all geologies incl. solid rock/rock
- Cummins engine Tier 5, 115 kW
- Can optionally be used with EL-D80 twin-tube rods or EL-D67 JET rods
- Variable torque and speed adjustment for maximum rotational performance and maximum productivity at any speed
- Fully automatic drilling operation incl. drill rod exchange and all other secondary activities
- Comfort operator's cabin*1 incl. Grammer comfort seat (with air suspension*1), central locking, electronic immobiliser, heating, air conditioning*1 or automatic climate control*1, radio, hands-free equipment, bottle cooler
- Powerful Bentonite HD pumps on board – full flow at maximum pressure for highest productivity
- Innovative and intuitive operating concept, radio remote control for remote-controlled drilling*1
- Compatible with all digital solutions by TRACTO-TECHNIK
- Numerous other options available

TECHNICAL DATA

DRILL ROD TYPE EL D80/EL D67

	metric		imperial	
Thrust and pullback force	130	kN	29,225	lbf
Max. torque EL-D80/EL-D67	4.500	Nm	3,320	lbf ft
Max. torque EL-D80 (inner rods)	1.200	Nm	885	lbf ft
Max. spindle speed EL-D80/EL-D67	230	U/min	230	rpm
Max. spindle speed EL-D80 (inner rods)	400	U/min	400	rpm
HP Bentonite pump P62 (P72 optional)	190 (320)*1	l/min	50 (85)*1	gpm
Rod magazine content EL-D80/EL-D67	120/168	m	394/551	ft
Pilot bore Ø EL-D80/EL-D67	140/100	mm	5.5/4	in
Min. bore radius EL-D80/EL-D67	35/32	m	115/105	ft
Max. engine output	115	kW	156	hp
JET mode: Upsizing Ø* ≤/Outer pipe Ø* ≤	500/400	mm	20/16	in
JET mode: Bore length* ≤	300	m	984	ft
ROCK mode: Upsizing Ø* ≤/Outer pipe Ø* ≤	355/250	mm	14/10	in
ROCK mode: Bore length* ≤	200	m	656	ft
Length x Width x Height (transport position)*2	7.490 x 1.850 x 2.660	mm	295 x 72.8 x 104.7	in
Max. weight*2	11.869	kg	26,167	lbs

* Depending on soil | *1 Option | *2 Depending on configuration | Data subject to change



SMART LINKING

360° DIGITAL SOLUTIONS

360° stands for integrated digital solutions, which allow you to master your complex tasks more easily and quickly, due to intelligent linking. Our cloud-based software solutions for HDD technology centrally link planning, execution, billing, documentation and service. That way you can use the machine technology even more efficiently and profitably – conveniently via PC, smartphone or tablet.

Access via the modular platform is quick and easy, use is intuitive. The first modules of this 360° experience are the **Cockpit** and the **QuickPlanner3D** for HDD technology and a tailor-made **eShop** for ordering accessories and spare parts.

EVERYTHING IN VIEW WITH THE COCKPIT

With the **Cockpit** all relevant performance and consumption data of your GRUNDODRILL rigs are centrally recorded and can be retrieved quickly at any time. Maximum data transparency allows you to individually control and increase the productivity of your drilling equipment.

- Efficient HDD fleet management
- Faster planning, monitoring and coordination of HDD construction sites
- Determination of saving potentials through data comparison
- Value retention of the HDD device due to optimised service

TARGET PLANNING WITH THE QUICKPATH

With the **QuickPlanner3D** you plan the optimal bore path automatically and quickly. The intelligent software is a self-optimizing bore planner, which calculates the shortest bore path, while reliably taking constraint points and limiting parameters into account.

- Efficient planning and quick bore path feasibility study
- Calculation of the optimal bore path using intelligent algorithms
- Realistic results due to unique three-dimensional calculation and planning

CLICK & BUY IN THE E-SHOP

For easy and quick ordering of accessories and spare parts for our NODIG technology there is our tailor-made **eShop**. Intelligent linking makes the ordering process transparent and minimises the risk of incorrect orders. In the integrated branding shop you can order our popular merchandising items with the "mole label" at the same time. Just as fast and transparent.

www.TRACTO-TECHNIK.com/Services/360-Digital-Solutions/

Cockpit . QuickPlanner3D . eShop

GRUNDODRILL

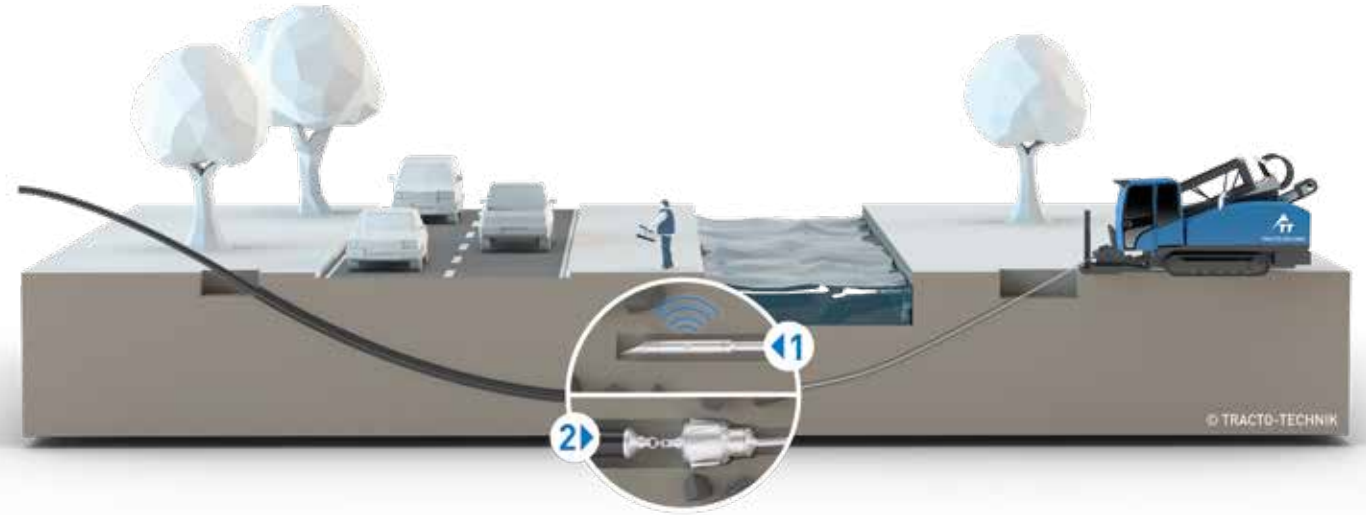
FLUID-ASSISTED HDD RIGS

GRUNDODRILL – INTELLIGENT & POWERFUL

With fluid-assisted drilling, the directional GRUNDODRILL rig first creates a pilot bore along a flexible bore path using a steerable drilling head. When the drill rods are pulled back, the borehole is upsized by an expanding head and the attached pipe is pulled into the bore path. That way, longitudinal bores, crossings and underpasses of waters and other traffic ways can be carried out even in rocky ground.

The drilling fluid consisting of water and the clay mineral Bentonite makes a major contribution to the successful execution of the pilot bore. It supports the excavation of the soil, removes the cuttings, stabilizes the bore channel and reduces the casing friction of the pipe to be installed.

The application range covers all pipe construction measures for gas, district heating and drinking water supply, the installation of sewage pressure pipes and cable protection pipes for broadband supply, telecommunications, e-mobility and wind power. The GRUNDODRILL HDD rigs are also applicable for further innovative applications in drainage and well construction, as well as geotechnics.



APPLICATION RANGE

- Undercrossings
- Longitudinal bores
- Installation of protection pipes
- Rock drilling

SPECIAL APPLICATIONS

- Horizontal drinking water wells
- Irrigation and drainage
- Geotechnical applications
- And much more

GRUNDODRILL 4X

FEATURES

- Kubota diesel engine with 28 kW drive power
- Control stand with clearly arranged control panel
- 1 multifunctional joystick
- Drill rod type: 4X
- Hydraulic anchoring unit pivotable in four positions
- Remote control
- Rod magazine with 32 rods for 48 m
- Stabilisers, rubberized steel tracks
- Rack & pinion drive

TECHNICAL DATA

DRILL ROD TYPE 4X TT2

	metric	imperial
Thrust and pullback force	43 kN	9,670 lbf
Max. torque	1.300 Nm	959 lbf ft
Max. spindle speed	230 U/min	230 rpm
Rod magazine content	48 m	157 ft
Pilot bore Ø	80 mm	3.15 in
Min. bore radius	25 m	82 ft
Max. engine output	28,5 kW	38.8 hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	250/160 mm	10/6.5 in
Bore length* ≤	100 m	328 ft
Length x Width x Height (transport position)	3.500 x 1.200 x 1.760 mm	137.8 x 47.2 x 69.3 in
Max. weight	2.160 kg	4,762 lbs

* Depending on soil | Data subject to change

GRUNDODRILL 15XP

FEATURES

- Cummins engine Tier 4 final, stage IV
- Drill rig with rubber track undercarriage, stabiliser
- Radio remote control
- Spacious cabin, comfort seat, joysticks, panel PC with touch screen
- Bore automatics
- Semi-automatic rod exchange system
- Semi-automatic clamping and releasing device
- Anchoring system with Bentonite collection tray
- Powerful Bentonite HP pump on board the rig
- Bore data log – data transmission
- HP cleaner
- Optional: bore automatics, percussive unit, rubberized steel tracks, air conditioning system

TECHNICAL DATA

DRILL ROD TYPE TD61, WAISTED OR SMOOTH

	metric		imperial	
Thrust and pullback force	147	kN	33,050	lbf
Max. torque	4.500	Nm	3,319	lbf ft
Max. spindle speed	185	U/min	185	rpm
HP Bentonite pump P62 (P72 optional)	200 (320)	l/min	52 (85)	gpm
Rod magazine content	210	m	689	ft
Pilot bore Ø	100	mm	4	in
Min. bore radius TD61 waisted (TD61 smooth, optional)	42 (60)	m	138 (197)	ft
Max. engine output	119	kW	162	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	500/400	mm	20/16	in
Bore length* ≤	350	m	1,150	ft
Length x Width x Height (transport position)	6.500 x 1.850 x 2.400	mm	255.9 x 72.8 x 94.5	in
Max. weight	10.460	kg	23,060	lbs

* Depending on soil | Data subject to change

GRUNDODRILL 15XPT

FEATURES

- Cummins engine Tier 4 final, stage IV
- Drill rig with rubber track undercarriage, stabiliser
- Radio remote control
- Spacious cabin, comfort seat, joysticks, panel PC with touch screen
- Bore automatics
- Semi-automatic rod exchange system
- Semi-automatic clamping and releasing device
- Anchoring system with Bentonite collection tray
- Powerful Bentonite HD pump on board the rig
- Bore data log – Data transmission
- HP cleaner
- Optional: bore automatics, percussive unit, rubberized steel tracks, air conditioning system

TECHNICAL DATA

DRILL ROD TYPE TD73

	metric		imperial	
Thrust and pullback force	160	kN	35,970	lbf
Max. torque	6.500	Nm	4,794	lbf ft
Max. spindle speed	190	U/min	190	rpm
HP Bentonite pump P62 (P72 optional)	200 (320)	l/min	52 (85)	gpm
Rod magazine content	180	m	591	ft
Pilot bore Ø	115	mm	4.50	in
Min. bore radius TD73	45	m	148	ft
Max. engine output	119	kW	162	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	500/400	mm	20/16	in
Bore length* ≤	400	m	1,312	ft
Length x Width x Height (transport position)	6.500 x 1.850 x 2.400	mm	255.9 x 72.8 x 94.5	in
Max. weight	11.200	kg	24,692	lbs

* Depending on soil | Data subject to change

GRUNDODRILL 18ACS

FEATURES

- Cummins engine Tier V final, Stage IV 119 kW
- Stepless adjustment of torque and speed for maximum rotational performance and highest productivity at any speed
- Bore rig with rubberized steel tracks and 2 stabilisers
- Radio remote control
- Spacious cabin, comfortable seat, multi-function joysticks, panel PC with touchscreen, air conditioning
- Bore automatics
- Fully automatic rod exchange system
- Fully automatic clamping and release device
- Anchoring system with Bentonite collection tray
- Powerful Bentonite HP pump on board the rig
- Bore data log – data transmission
- HP cleaner

TECHNICAL DATA

DRILL ROD TYPE EL95/TD73/TD82

	metric		imperial	
Thrust and pullback force	180	kN	40,465	lbf
Max. torque EL95/TD73/TD82	7.500/7.500/10.000	Nm	5,532/5,532/7,376	lbf ft
Max. torque EL95 (inner rods)	2.500	Nm	1,844	lbf ft
Max. spindle speed EL95/TD73/TD82	200/200/180	U/min	200/200/180	rpm
Max. spindle speed EL95 (inner rods)	350	U/min	350	rpm
HP Bentonite pump P72/320 (P72/400, optional)	320 (400)	l/min	85 (105)	gpm
Rod magazine content EL95/TD73/TD82	120/225/210	m	394/738/689	ft
Pilot bore Ø EL95/TD73/TD82	165/115/140–170	mm	6.5/4.5/5.5–6.5	in
Min. bore radius EL95/TD73/TD82	55/55/60	m	180/180/197	ft
Max. engine output	119	kW	162	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	600/500	mm	24/20	in
Bore length* ≤	400	m	1312	ft
Length x Width x Height (transport position)	6.700 x 2.350 x 2.620	mm	263.8 x 92.5 x 103.1	in
Max. weight	15.350	kg	33,841	lbs

* Depending on soil | Data subject to change

GRUNDODRILL 18N

FEATURES

- Cummins engine Tier 4 final, 119 kW
- Stepless adjustment of torque and speed for maximum rotational performance and highest productivity at any speed
- Drill rig with rubberized steel tracks and 2 stabilisers
- Radio remote control
- Spacious cabin, comfortable seat, multi-function joysticks, panel PC with touchscreen, air conditioning
- Bore automatics
- Fully automatic rod exchange system
- Fully automatic clamping and release device
- Anchoring system
- Powerful Bentonite HP pump on board the rig
- Bore data log – data transmission
- HP cleaner

TECHNICAL DATA

DRILL ROD TYPE TD73/TD82

	metric		imperial	
Thrust and pullback force	180/200	kN	40,465/44,960	lbf
Max. torque TD73/TD82	7.500/10.000	Nm	5,532/7,376	lbf ft
Max. spindle speed	180	U/min	180	rpm
HP Bentonite pump P82/320 (P72/400, optional)	320 (400)	l/min	85 (105)	gpm
Rod magazine content TD73/TD82	225/210	m	738/689	ft
Pilot bore Ø TD73/TD82	115/140–170	mm	4.5/5.5–6.5	in
Min. bore radius TD73/TD82	55/60	m	180/197	ft
Max. engine output	119	kW	162	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	600/500	mm	24/20	in
Bore length* ≤	400	m	1.312	ft
Length x Width x Height (transport position)	6.700 x 2.350 x 2.620	mm	263.8 x 92.5 x 103.1	in
Max. weight	15.350	kg	33,841	lbs

* Depending on soil | Data subject to change

GRUNDODRILL 28Nplus

FEATURES

- Cummins engine Tier V, 224 kW
- Stepless adjustment of torque and speed for maximum rotational performance and highest productivity at any speed
- Drill rig with rubberized steel tracks and 2 stabilisers
- Radio remote control
- Spacious cabin, comfortable seat, multi-function joysticks, panel PC with touchscreen, air conditioning
- Bore automatics
- Fully automatic rod exchange system
- Fully automatic clamping and release device
- Anchoring system
- Powerful Bentonite HP pump on board the rig
- Bore data log – Data transmission
- HP cleaner

TECHNICAL DATA

DRILL ROD TYPE TD82

	metric		imperial	
Thrust and pullback force	280	kN	62,946	lbf
Max. torque TD82	11.000	Nm	8,113	lbf ft
Max. spindle speed	180	U/min	180	rpm
HP Bentonite pump	650	l/min	172	gpm
Rod magazine content	288	m	945	ft
Pilot bore Ø	140–170	mm	5.5/6.5	in
Min. bore radius	75	m	246	ft
Max. engine output	224	kW	305	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	900/710	mm	36/28	in
Bore length* ≤	500	m	1,640	ft
Length x Width x Height (transport position)	7.600 x 2.530 x 2.900	mm	299.2 x 99.6 x 114.2	in
Max. weight	19.200	kg	42,329	lbs

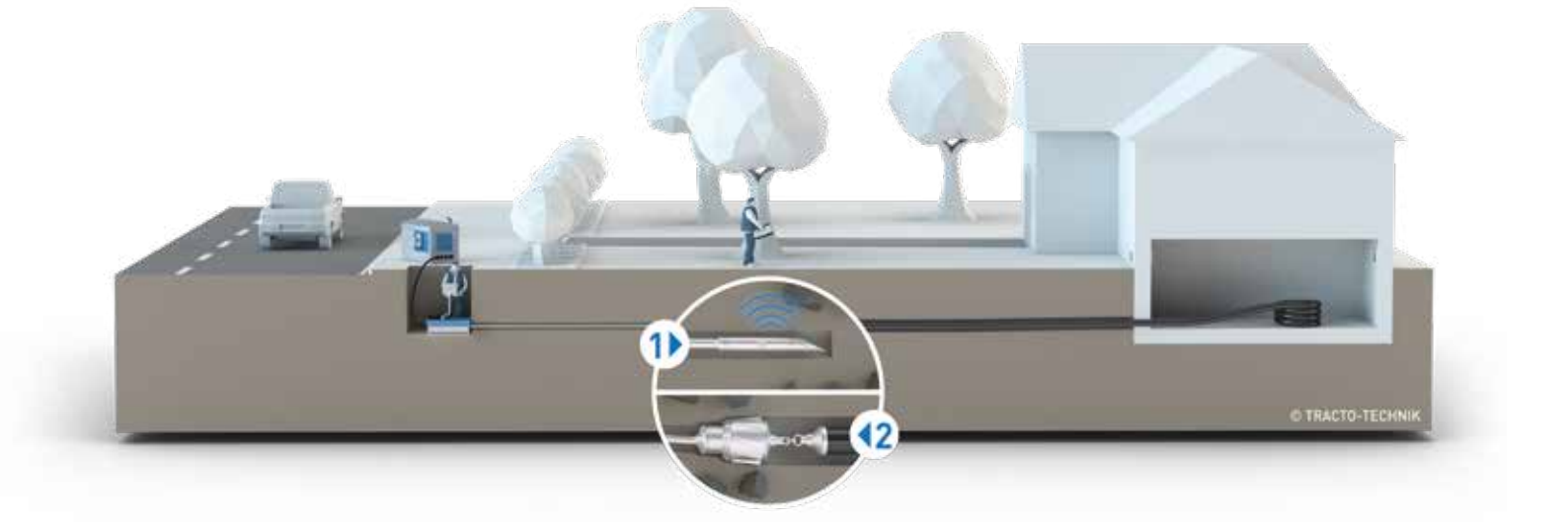
* Depending on soil | Data subject to change

GRUNDOPIT – MINIMALLY INVASIVE

The GRUNDOPIT bore rigs are easy-to-use mini fluid-assisted HDD rigs with which property service connections for gas, water, electricity, FTTH and sewer pressure pipes can be established quickly and economically. When drilling into the building, the brickwork is sealed without a head hole in front of the house wall using a wall duct.

In addition to property service connections, longitudinal installations of up to 100 m in length are also possible with GRUNDOPIT mini drilling rigs. Depending on the soil, a water-polymer drilling fluid or a Bentonite drilling fluid is used. Depending on the type of bore, pipe diameter, soil type, bore length and degree of difficulty, a power, manhole or keyhole version can be selected.

A particularly gentle version of steerable drilling is the minimally invasive keyhole method with GRUNDOPIT KS50 for the installation of property service connections from the main line out of the smallest possible round construction pit (keyhole Ø 65 cm) directly into the house or into a small assembly pit in front of the house. All connection work is carried out above ground and the keyhole is then restored with the removed core without any additional asphalting work or consequential damage.

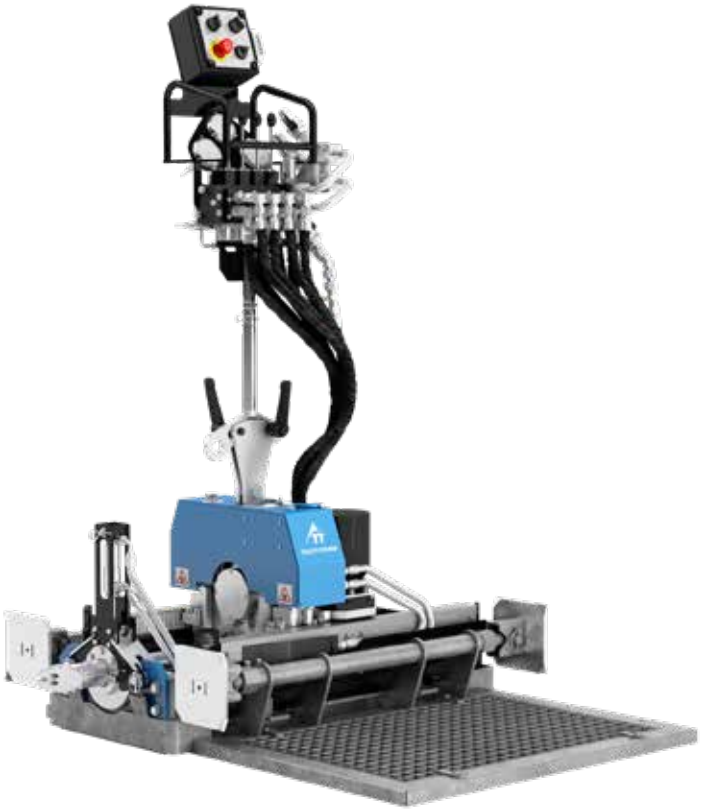


APPLICATION RANGE

- Property service connections
- Data, supply and disposal lines
- Bores into the building

SPECIAL APPLICATIONS

- Bores out of manholes from up to Ø 1 m
- Bores out of keyholes from up to Ø 650 mm



GRUNDOPIT PS40

FEATURES

- Extremely compact mini horizontal directional drilling rig for pit start
- Near-surface bores up to 50 m in length out of only 1 m wide pits, e.g. in pavements
- Effective dill rod length 500 mm with only 1,174 mm rig length
- Thrust by rack and pinion drive
- Simple, fast rod coupling without screwing
- Hydraulic pit start frame for short set-up times
- Unfolding clamp
- Swivelling control panel

TECHNICAL DATA

DRILL ROD TYPE TR 34

	metrisch	imperial
Length x Width x Height (Working position)	955 x 1.175 x 1.500 mm	37.6 x 46.3 x 59.1 in
Weight mech. tension	313 kg	690 lbs
Thrust and pullback force	40 kN	9 lbf
Max. torque	1.000 Nm	738 lbf ft
Hydraulic pressure	230 bar	3,336 psi
Upsizing Ø ≤	150 mm*	5,9 in
Bore rod Ø	45 mm	1.8 in
Min. bore radius	26,5 m	87 ft
Pilot bore	65 mm	2.6 in

* Depending on soil | Data subject to change

GRUNDOPIT PS60

FEATURES

- Two-stage rotation
- Hydraulic clamping
- Effective length of rods 750 mm with a rig length of only 1,370 mm
- Thrust via cylinder drive
- Fold-out control board
- Hydraulic bracing in work pit
- The hydraulic line is coupled directly with the rig
- Rotary drive with quick-locking rods (replacement of single wear parts)
- Fold-out clamp

TECHNICAL DATA

DRILL ROD TYPE EL50

	metric		imperial	
Thrust and pullback force	60	kN	13,490	lbf
Max. torque	1.500	Nm	1,106	lbf ft
Max. spindle speed	150	U/min	150	rpm
Pilot bore Ø	80	mm	3.15	in
Min. bore radius	26,5	m	87	ft
Max. engine output (drive: hydraulic unit HP028 or HP037)	28/37	kW	38/50	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	250/200	mm	9.84/7.87	in
Bore length* ≤	80	m	262	ft
Length x Width x Height (Working position)	1.385 x 1.100 x 1.450	mm	45.1 x 43.3 x 57.1	in
Max. weight	490	kg	1,080	lbs

* Depending on soil | Data subject to change

GRUNDOPIT KS50

FEATURES

- Drilling from out of the smallest round construction pit, Ø 65 cm keyhole or a small trench
- Minimum excavating works – the job cannot be done with less
- Directional drilling with continuous detection
- Simple operation with bore automatics and user-friendly control panel
- No pits on private properties, bore directly into the basement
- Eco-friendly and gentle installation method

TECHNICAL DATA

DRILL ROD TYPE EL50

	metric		imperial	
Thrust and pullback force	50	kN	11,240	lbf
Max. torque	1.200	Nm	885	lbf ft
Max. spindle speed	70	U/min	70	rpm
Pilot bore Ø	58	mm	2.28	in
Min. bore radius	50	m	164	ft
Max. engine output (drive: hydraulic unit HP028)	28	kW	38	hp
Upsizing Ø* ≤/Outer pipe Ø* ≤	130/90	mm	5/3.5	in
Bore length* ≤	50	m	164	ft
Depth bore axis (long version) ≤	1.150 (1.430)	mm	45.3 (56.3)	in
Diameter x Height (long version)	595 x 2.350 (2.850)	mm	23.4 x 92.5 (112.2)	in
Max. weight (long version)	550 (620)	kg	1,213 (1,367)	lbs

* Depending on soil | Data subject to change

GRUNDOCORE

CORE DRILL UNITS

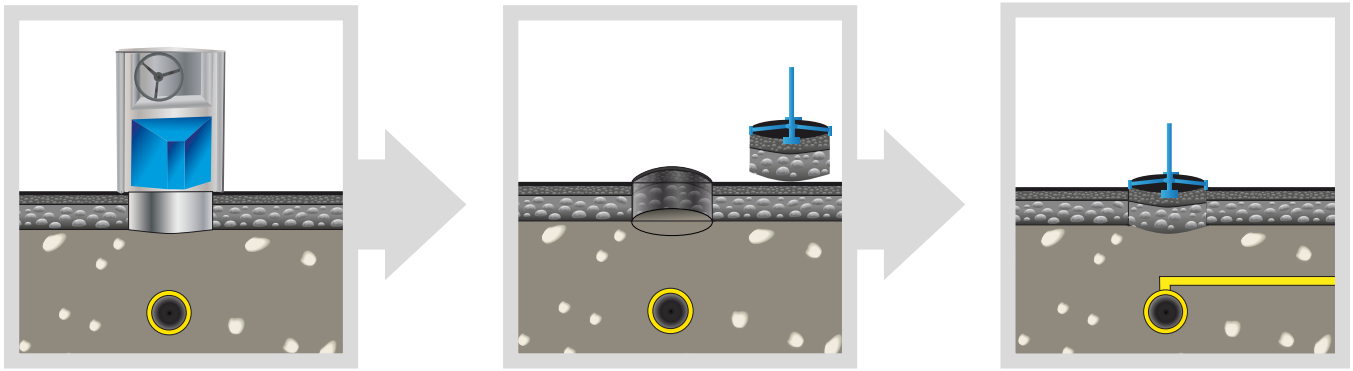
GRUNDOCORE – FOR THE PERFECT CONSTRUCTION PIT

Circular construction pits allow fast and particularly gentle access to the underground infrastructure without classical excavation work. An essential advantage of the round construction pit compared to a conventional square excavation pit is the long-term strength after reclosure.

For producing these round construction pits, GRUNDOCORE crown bore rigs are used to make a circular cut into the surface of asphalt, concrete or reinforced concrete. The core is neatly cut out and later re-inserted, so that the surface is sustainably restored. That way, minimally invasive keyholes and even walk-in round construction pits can be produced.

- Conceptual solution for the trenchless installation and renewal of water, gas, power and data property service connections
- Lower surface damage and subsequent costs compared with conventional square-cut excavation pits
- Safe, more productive and reduced reinstatement surface work
- For assembly work inside the keyhole a various special telescopic tools are available

PROCEDURE



APPLICATION RANGE

- Construction of keyholes
- Construction of walk-in construction pit
- Service and repair works
- Start/target pits for new pipe installation

GRUNDOCORE 650/450

FEATURES

- Low investment and operating costs
- Short set-up times, simple transportation
- Crowned bore heads for asphalt or concrete, also with mixed bits
- Bore depth thrust via large hand wheel – lifting and lowering are easy to control
- Connection for central cooling water supply

TECHNICAL DATA

	metric		imperial	
Height	1.360	mm	53.54	in
Drill unit Ø	1.060	mm	41.73	in
Max. crowned bore head Ø outer spindle	650	mm	25.59	in
Max. crowned bore head Ø inner spindle				
Max. weight with crowned bore head	360	kg	793.66	lbs
Max. operating pressure	200	bar	2,900.76	psi
Max. torque	360	Nm	265.54	lbf ft
Max. rotational speed outer crowned bore head	200	U/min	200	rpm
Max. rotational speed inner crowned bore head	-		-	
Max. bore depth	450	mm	17.72	in

GRUNDOCORE 650/600

FEATURES

- Short set-up times, simple transportation
- Crowned bore heads for asphalt or concrete, also with mixed bits
- Simultaneous application of two crowned bore heads is possible
- Bore depth thrust via large hand wheel – lifting and lowering are easy to control
- Connection for central cooling water supply

TECHNICAL DATA

	metric		imperial	
Height	1.780	mm	70.08	in
Drill unit Ø	1.220	mm	48.03	in
Max. crowned bore head Ø outer spindle	650	mm	25.59	in
Max. crowned bore head Ø inner spindle	150	mm	5.91	in
Max. weight with crowned bore head	420	kg	925.94	lbs
Max. operating pressure	200	bar	2,900.76	psi
Max. torque	470	Nm	346.67	lbf ft
Max. rotational speed outer crowned bore head	200	U/min	200	rpm
Max. rotational speed inner crowned bore head	200	U/min	200	rpm
Max. bore depth	600*	mm	23.62	in

* Depending on soil | Data subject to change

GRUNDOCORE TSC650/600

FEATURES

- Application of crowned bore heads with a max. diameter of 650 mm
- Great cutting depth of 600 mm
- Strong torque of 560 Nm
- Crowned bore heads for asphalt and concrete cover layers
- Optional quick-change system for simple and safe change of crowned bore heads

TECHNICAL DATA

	metric		imperial	
Height	1.780	mm	70.08	in
Drill unit Ø	1.220	mm	48.03	in
Max. crowned bore head Ø outer spindle	650	mm	25.59	in
Max. crowned bore head Ø inner spindle	150	mm	5.91	in
Max. weight with crowned bore head	500	kg	1,102.31	lbs
Max. operating pressure	150	bar	2,175.57	psi
Max. torque	560	Nm	413.06	lbf ft
Max. rotational speed outer crowned bore head	160	U/min	160	rpm
Max. rotational speed inner crowned bore head	1.280	U/min	1,280	rpm
Max. bore depth	600*	mm	23.62	in

* Depending on soil | Data subject to change

GRUNDOCORE 1500/650

FEATURES

- Application of crowned bore heads with a max. diameter of 1,500 mm
- Great cutting depth of 650 mm
- Strong torque of 2,320 Nm
- Crowned bore heads for asphalt and concrete cover layers

TECHNICAL DATA

	metric		imperial	
Height	1.900	mm	74.80	in
Drill unit Ø	2.040	mm	80.31	in
Max. crowned bore head Ø outer spindle	1.500	mm	59.06	in
Max. crowned bore head Ø inner spindle				
Max. weight with crowned bore head	1.250	kg	2,755.78	lbs
Max. operating pressure	225	bar	3,263.36	psi
Max. torque	2.500	Nm	1,843.91	lbf ft
Max. rotational speed outer crowned bore head	60	U/min	60	rpm
Max. rotational speed inner crowned bore head	-	U/min	-	rpm
Max. bore depth	650	mm	25.59	in

Data subject to change

GRUNDORAM

HORIZONTAL RAMMERS

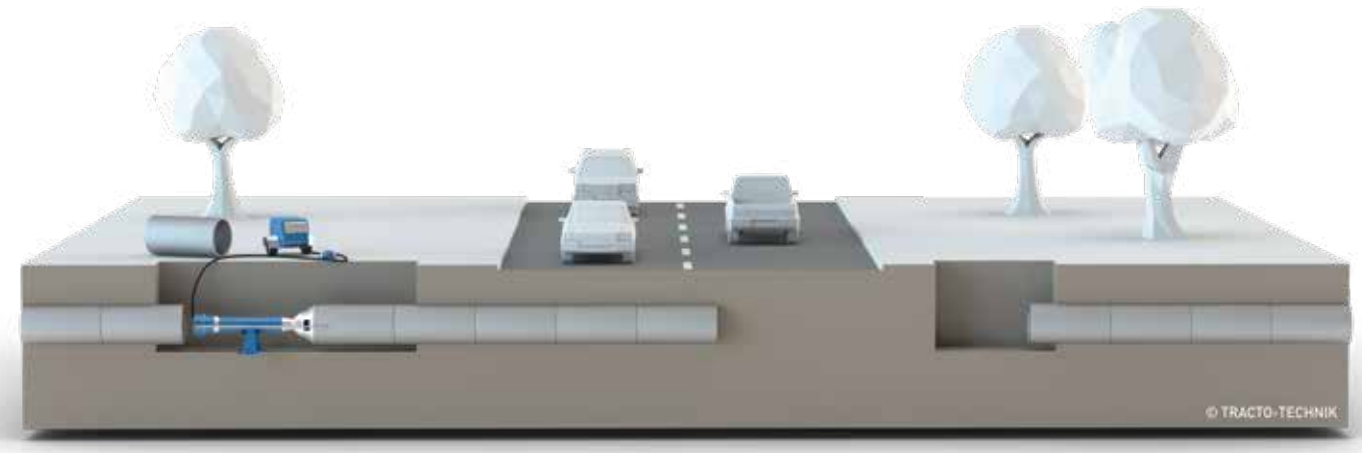
GRUNDORAM – THE DRIVING FORCE

The GRUNDORAM horizontal rammers are especially robust, resilient and reliable. Due to the galvanised one-piece machine housing and the elaborately tempered piston, the machine is very durable as well. The pneumatically driven GRUNDORAM ramming machines provide thrust forces up to 40,000 Nm and are applicable in all kinds of soil types, with the exception of muddy areas, swamps and compact, non-displaceable soil for a variety of applications. The most common GRUNDORAM application is the horizontal installation of steel pipes up to ND 4,000 mm underneath streets, railway tracks and rivers up to 80 m length without pressing abutments. With the appropriate accessories, the GRUNDORAM horizontal rammers can also be used for vertical applications, to support HDD drilling (HDD assist) and for dynamic pipe renewal.

DYNAMIC STEEL PIPE INSTALLATION

- Horizontal application
- Vertical application
- HDD assist & rescue

DYNAMIC PIPE BURSTING

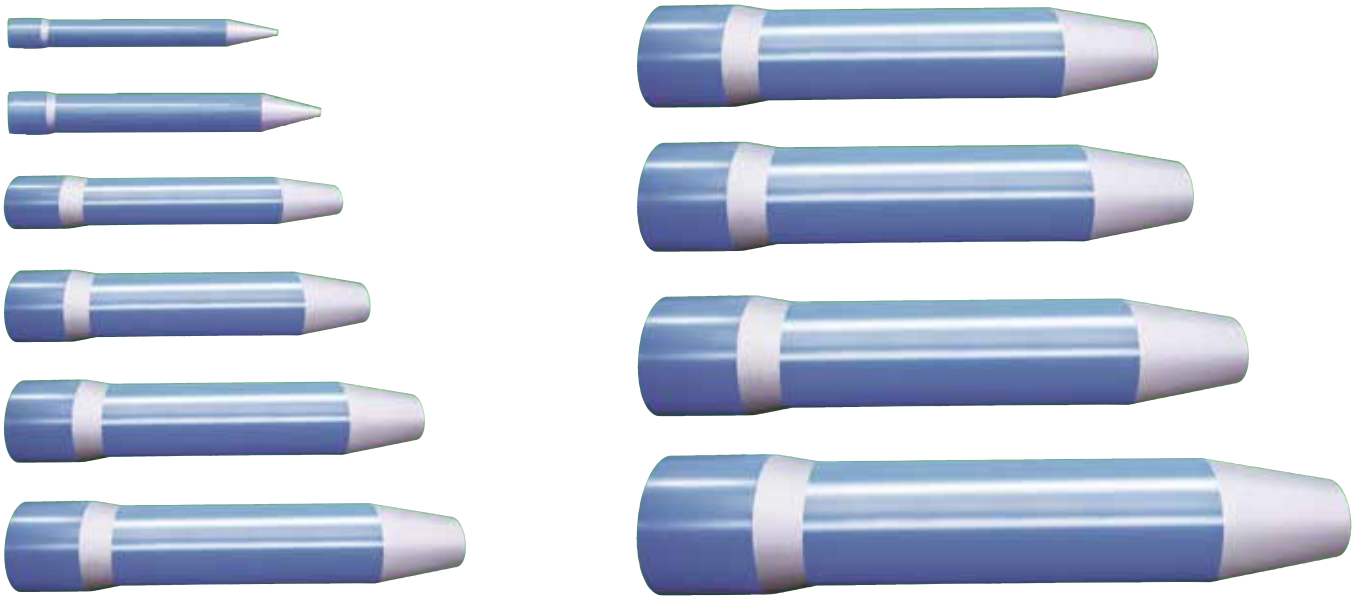


APPLICATION RANGE

- Crossings underneath streets, railway tracks, buildings and closed surfaces
- Pipeline construction
- Dynamic pipe renewal

SPECIAL APPLICATIONS

- Vertical application foundations and piling, well construction, ramming in sheet piles
- HDD assist & rescue, e.g. pull-back assist



GRUNDORAM

FEATURES

- Installation of steel pipes up to 4,000 mm diameter with low coverage
- No abutment required – short set-up times
- One-piece, deep-hole drilled housing – high creep strength and optimum energy transmission with maximum impact force and enormous thrust power
- Segmental machine lock with elastically suspended control – safe, positive locking design
- Service-friendly construction with only one-sided machine closure

TECHNICAL DATA

MACHINE	Front Ø mm/in	Length mm/in	Weight kg/lbs	Air consumption m^3/min/cfm	From pipe Ø mm/in
DAVID	95 3.7	1.490 58.7	59 130.1	1,2 42	50 2.0
ATLAS	130 5.1	1.453 57.2	95 209.4	2,7 95	50 2.0
TITAN	145 5.7	1.545 60.8	137 302.0	4,0 141	100 3.9
OLYMP	180 7.1	1.690 66.5	230 507.1	4,5 159	100 3.9
HERKULES	216 8.5	1.913 75.3	368 811.3	6,5 230	120 4.7
GIGANT	270 10.6	2.010 79.1	615 1,355.8	12 424	200 7.9
KOLOSS	350 13.8	2.341 92.2	1.180 2,601.5	20 706	280 11.0
GOLIATH	460 18.1	2.852 112.3	2.465 5,434.4	35 1,236	380 15.0
TAURUS	600 23.6	3.645 143.5	4.800 10,582.2	50 1,766	380 15.0
APOLLO	800 31.5	4.400 173.2	11.500 25,353.1	100 3,531	600 23.6

Data subject to change

MINI-ATLAS

MINI-OLYMP

MINI-GIGANT

GRUNDORAM MINI

FEATURES

- Shortened machine length for use in confined spaces
- Reduced machine weight for easier handling
- Mini machines with reverse gear – easier disassembly of ramming accessories

TECHNICAL DATA

MACHINE	Front Ø mm/in	Length mm/in	Weight kg/lbs	Air consumption m^3/min/cfm	From pipe Ø mm/in
MINI-ATLAS	125 4.9	964 37.2	60 132.3	1,7 60	50 2.0
MINI-OLYMP	180 7.1	1.080 42.5	175 385.8	3,5 124	100 3.9
MINI-GIGANT	270 10.6	1.230 48.4	460 1,014.1	10 353	200 7.9

Data subject to change

GRUNDOCRACK

DYNAMIC PIPE BURSTING SYSTEMS

GRUNDOCRACK – DYNAMIC & PRODUCTIVE

The GRUNDOCRACK machines are modified horizontal rammers, which are applied for steel pipe installations, as well as for dynamic pipe renewals. All GRUNDOCRACK machines are equipped with a reverse gear, allowing for the accessories to be disassembled quickly and ergonomically and the machines to be easily recovered, even in confined spaces.

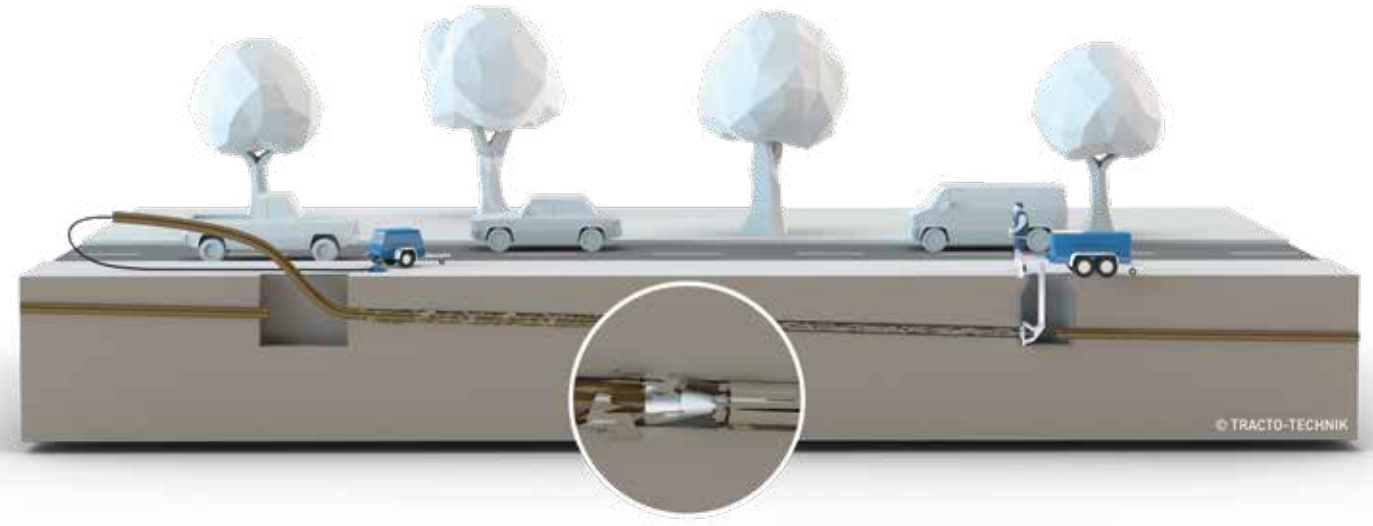
The GRUNDOCRACK machines are particularly suitable for the dynamic renewal of damaged pipes made of brittle materials in closed construction. Doing so the old pipe is broken open with dynamic impact energy and displaced into the surrounding soil. At the same time, new pipes made of PE-HD (long or short pipes) or PVC-U of the same or larger cross-section are pulled in.

In addition to pipe renewal, the GRUNDOCRACK can also be used for pipe rehabilitation and, with the appropriate accessories, for dynamic steel pipe ramming.

DYNAMIC PIPE RENEWAL

- Dynamic pipe bursting
- Dynamic calibre bursting
- Dynamic tight-in-pipe

DYNAMIC STEEL PIPE INSTALLATION

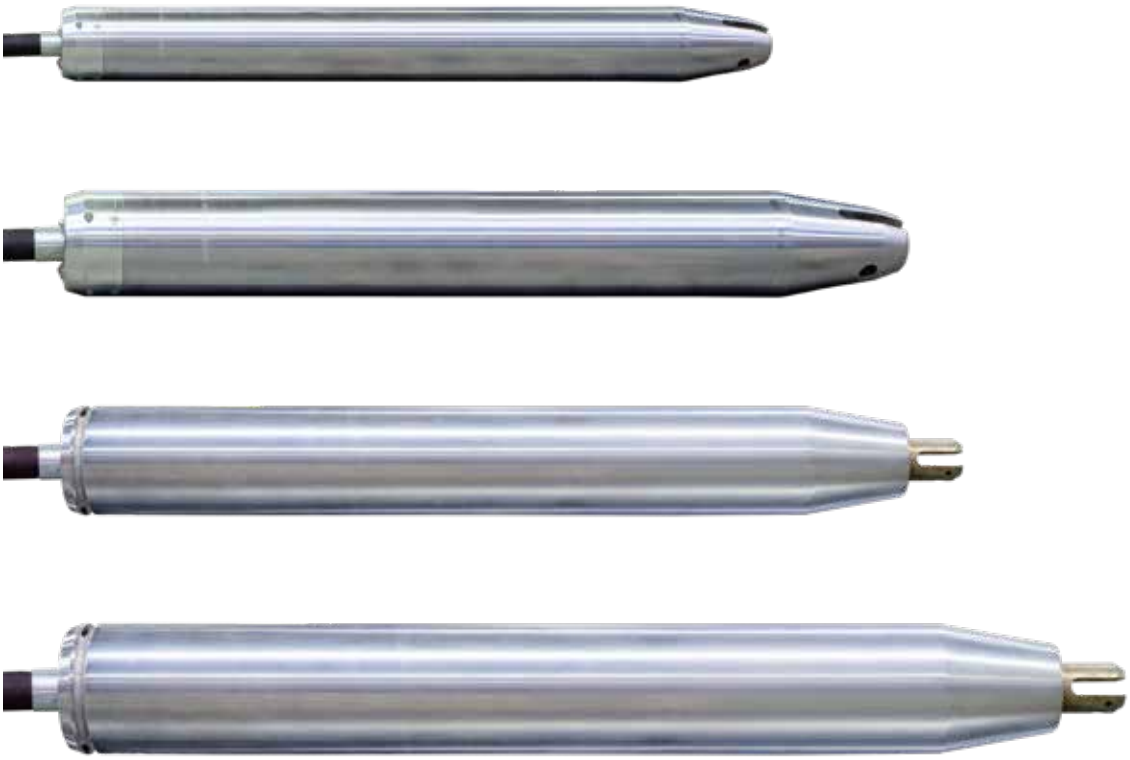


APPLICATION RANGE

- Dynamic pipe bursting
- Calibre bursting
- Tight-in-pipe

SPECIAL APPLICATION

- Steel pipe installation



GRUNDOCRACK

FEATURES

- Solid one-piece casing – heavy-duty without welding seams or screwed connections
- Smooth machine body – easy recovery through the new pipe in confined spaces
- Reverse gear with servo control – easy loosening of accessories and ergonomic handling
- Pulling eye for rope connection – on-target guidance of the machine
- Front cone – direct/optimal force introduction into the expander
- Elastically mounted control – gentle on materials

TECHNICAL DATA

MACHINE	Machine Ø mm/in	Length mm/in	Weight kg/lbs	Air consumption m^3/min/cfm	Max. pipe Ø mm/in
PCG 130	130 5.1	1.460 57.5	95 209.4	2,7 95	225 8.9
PCG 180	180 7.1	1.700 66.9	230 507.1	4,5 159	315 12.5
PCG 200	208 8.2	2.100 82.7	395 870.8	6,5 230	355 14.4
PCG 260	280 11.0	2.290 90.2	615 1,355.8	12,0 424	450 17.7
PCG 350	380 15.0	2.730 107.5	1.180 2,601.5	20,0 706	560 22.0

Data subject to change

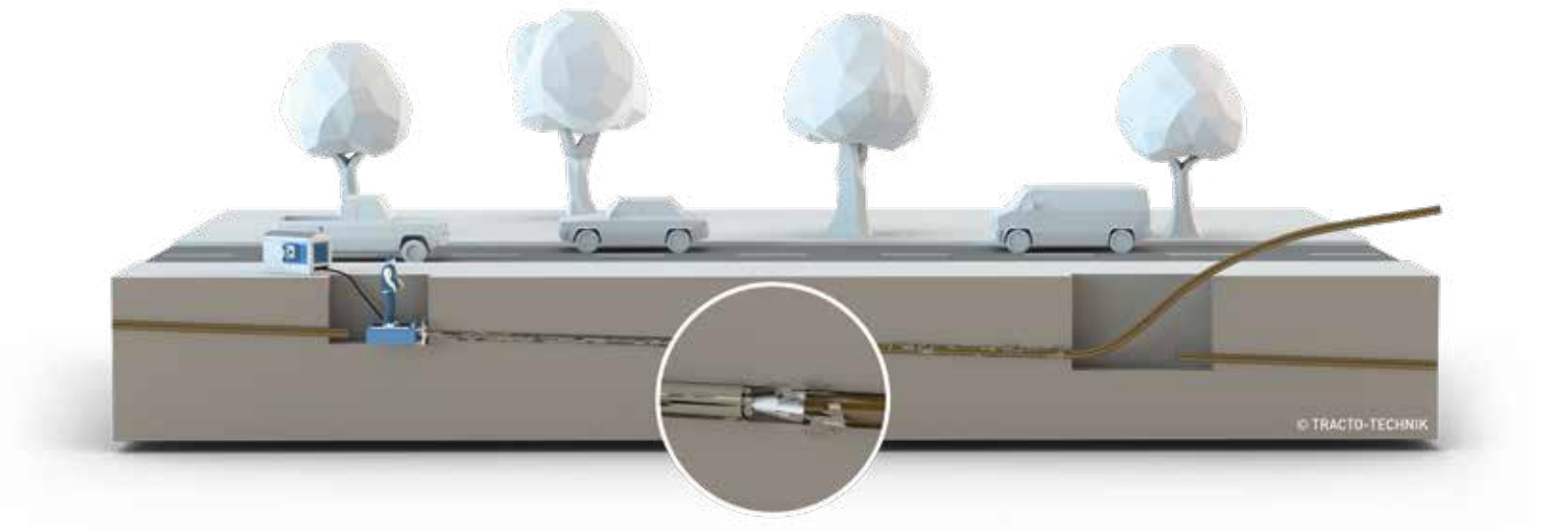
GRUNDOBURST

STATIC PIPE BURSTING SYSTEMS

GRUNDOBURST – THE BEST FOR PIPE RENEWAL

For the past 30 years pipe bursting has been a worldwide approved method for the renewal of pressure and gradient pipes. In the process, the old pipe is replaced by a new pipe of equal or larger diameter. Using the static pipe bursting method with GRUNDOBURST lengths of up to 150 m can be achieved in both directions from a machine pit.

With the powerful and robust GRUNDOBURST pulling rigs, damaged pipes up to Ø 1,200 mm (circular and oval profiles) can be replaced without trenches. First, the rig pushes the bursting rods through the old pipe. The specially developed QuickLock rods are not screwed together, but simply and firmly connected with a click-shut coupling. This considerably simplifies handling on the job site. Also slight bends can be driven with the QuickLock rods. Once the cutting tool and the new pipe have been attached, the pulling-in process begins. The GRUNDOBURST rigs develop a pulling force of 40 t to 250 t. In addition to the complete renewal of pipes in static pipe bursting, the versatile GRUNDOBURST rigs can also be used for the partial repair and renovation of pipes. An extensive choice of specific accessories enables these rehabilitation methods to be carried out safely and trouble-free.



APPLICATION RANGE

- Static pipe bursting
- Calibre pipe bursting
- Tight In Pipe (TIP)
- Pipe reduction
- Pipe relining

GRUNDOBURST 400S

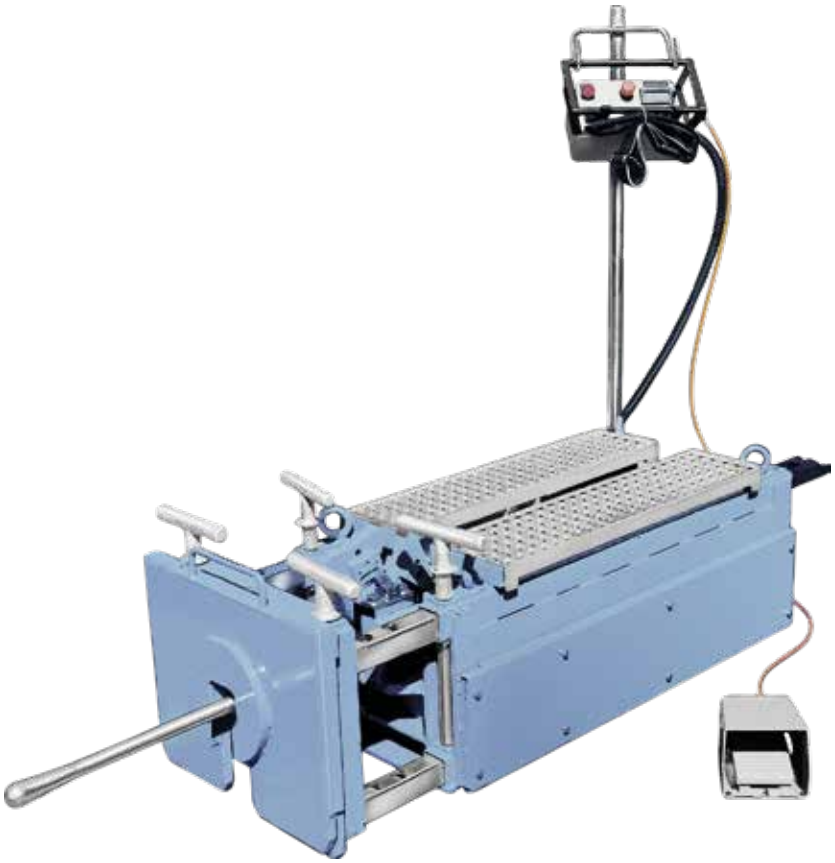
FEATURES

- For pressure and sewer lines ND 50 to ND 250 up to approx. 100 m length (dep. on method)
- Pulling rig length only 60 cm
- Effective rod length in the manhole: 470 mm
- Relatively simple operation inside the manhole
- No excavation when working from manhole to manhole
- All-round working safety

TECHNICAL DATA

	metric		imperial	
Pulling rig L x W x H	600 x 490 x 340	mm	23.62 x 19.29 x 13.39	in
Weight of the rig	200	kg	440,92	lbs
Pulling force at 250 bar	400	kN	89,923	lbf
Construction pit L x W	2.500 x 1.100	mm	98.43 x 43.3	in
Hydr. operating pressure	250	bar	3,625.95	psi
Old pipe Ø	ND 50–ND 250	mm	ND 1.97–ND 9.84	in
For pipe materials	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel		PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel	
New pipe Ø	up to OD 280	mm	up to OD 11.02	in
For pipe materials	PE, PP, stoneware, grey cast iron, GFRP, steel		PE, PP, stoneware, grey cast iron, GFRP, steel	
Bursting rod Ø	54 (standard)/35 max. 200	mm	2,13 (standard)/1.38 max. 44,961.80	in
Bursting rod weight	5	kg	11.02	lbs

Data subject to change



GRUNDOBURST 400G

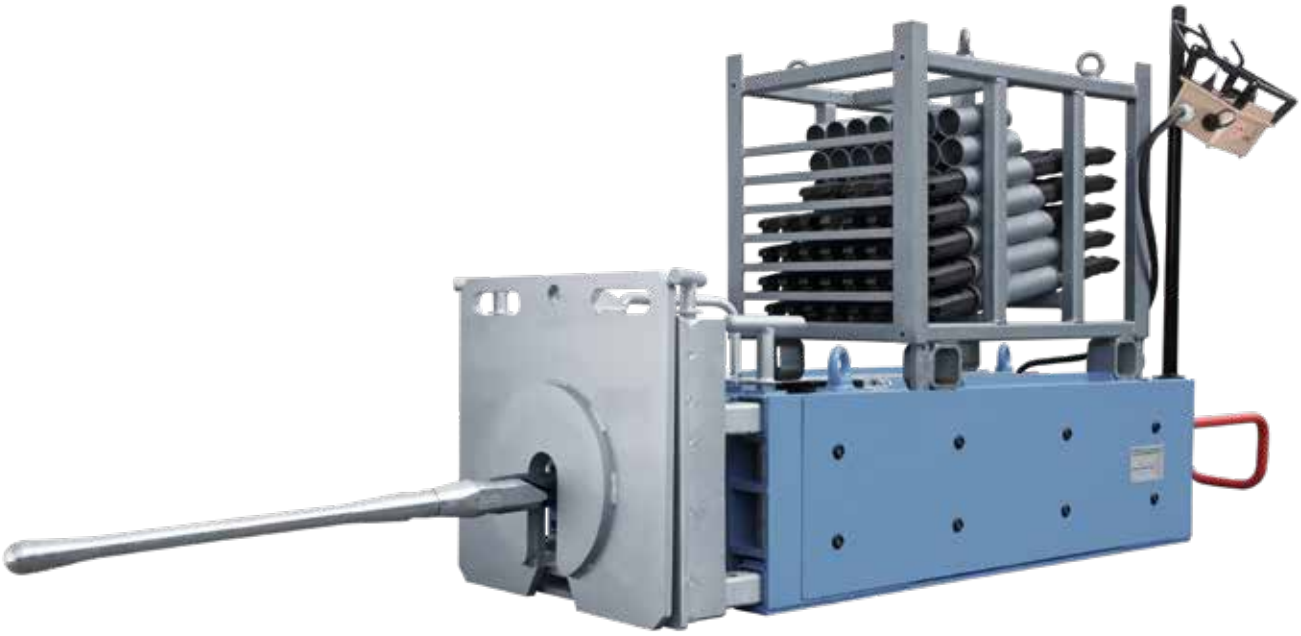
FEATURES

- For pressure and sewer lines ND 50 to ND 250 up to approx. 100 m lengths (dep. on method)
- Compact dimensions for small pits
- Rapid work cycles and high performance
- Fast rod pushing in the old pipe and pulling in of the new pipe
- Light weight for simple transportation
- Can be applied in both directions from a single pit
- Simple installation and rapid machine start
- One-man operation with remote control
- Accessories for specific methods

TECHNICAL DATA

	metric	imperial
Pulling rig L x W x H	1.420 x 560 x 520 mm	55.91 x 22.05 x 20.47 in
Weight of the rig	560 kg	1,234.59 lbs
Pulling force at 250 bar	400 kN	89,923 lbf
Construction pit L x W	3.300 x 1.100 mm	129.92 x 43.31 in
Hydr. operating pressure	250 bar	3,625.95 psi
Old pipe Ø	ND 50–ND 250 mm	ND 1.97–ND 9.84 in
For pipe materials	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel
New pipe Ø	up to OD 280 mm	up to OD 11.02 in
For pipe materials	PE, PP, stoneware, grey cast iron, GFRP, steel	PE, PP, stoneware, grey cast iron, GFRP, steel
Bursting rod Ø	54 (standard)/35 max. 200 mm	2,13 (standard)/1.38 max. 44,961.80 in
Bursting rod weight	7,5 kg	16.53 lbs

Data subject to change



GRUNDOBURST 800G

FEATURES

- For pressure and sewer lines ND 80–ND 400 up to approx. 100 m lengths (procedural)
- Compact dimensions for small pits
- Rapid work cycles and high performance
- Fast rod pushing into the old pipe and pulling in of the new pipe
- Can be applied in both directions – from a single pit
- Rapid machine start
- One-man operation with remote control
- Accessories for specific methods

TECHNICAL DATA

	metric		imperial	
Pulling rig L x W x H	1.700 x 720 x 670	mm	66.93 x 28.3 x 26.38	in
Weight of the rig	1.450	kg	3,196.70	lbs
Pulling force at 250 bar	769	kN	172,880	lbf
Construction pit L x W	4.500 x 1.500	mm	177.17 x 59.06	in
Hydr. operating pressure	250	bar	3,625.95	psi
Old pipe Ø	ND 80–ND 400	mm	ND 3.15–ND 15.75	in
For pipe materials	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel		PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel	
New pipe Ø	up to OD 400	mm	up to OD 15.75	in
For pipe materials	PVC, PE, stoneware, grey cast iron, GFRP, steel		PVC, PE, stoneware, grey cast iron, GFRP, steel	
Bursting rod Ø	75 (standard)/54 max. 400 kN	mm	2,95 (standard)/2.13 max. 89,923.60	in
Bursting rod weight	13	kg	28.66	lbs

Data subject to change

GRUNDOBURST 1250G

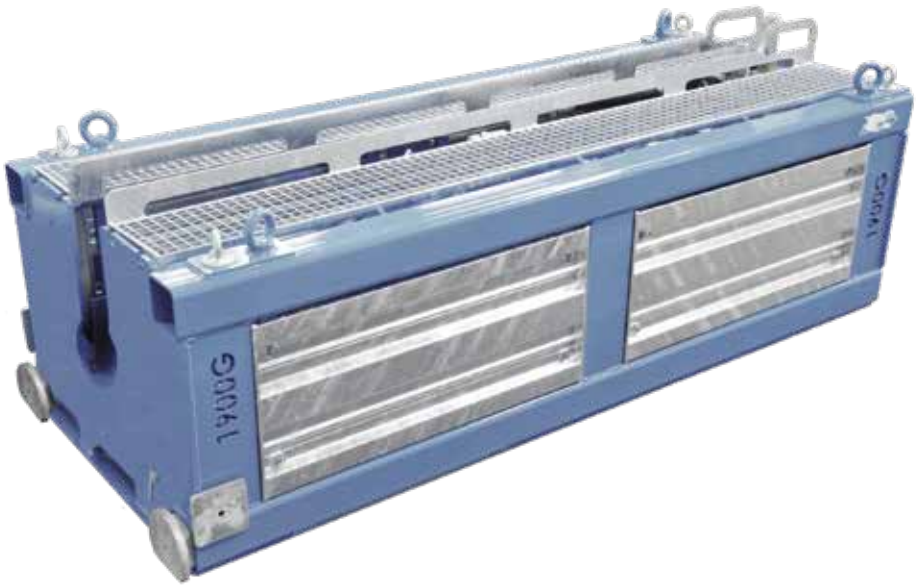
FEATURES

- From GRUNDOBURST 1250G upwards a new power class begins. The GRUNDOBURST 1250G generates a maximum pulling force of 1270 kN (127 t). The machine is either suitable for replacing old pipes from ND 150 to ND 600 over up to 300 m lengths or relining old pipes up to. approximately ≤ 1,000 m.
- As higher pulling forces are required for penetrating the soil in greater installation depths the bursting rods are dimensioned accordingly with a length of 1.70 m and a weight of 85 kg. For models 1250G and upwards insertion and removal of the bursting rods is carried out with a lifting device.

TECHNICAL DATA

	metric	imperial
Pulling rig L x W x H	2.300 x 1.100 x 875 mm	90.55 x 43.31 x 34.45 in
Weight of the rig	3.120 kg	6,883.34 lbs
Pulling force at 250 bar	1.272 kN	285,960 lbf
Construction pit L x W	6.500 x 1.700 mm	255.91x66.93 in
Hydr. operating pressure	250 bar	3,625.95 psi
Old pipe Ø	ND 150–ND 600 mm	ND 5.91–ND 23.62 in
For pipe materials	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel
New pipe Ø	up to OD 630 mm	up to OD 24.80 in
For pipe materials	PVC, PE, stoneware, grey cast iron, GFRP, steel	PVC, PE, stoneware, grey cast iron, GFRP, steel
Bursting rod Ø	100 mm	3.94 in
Bursting rod weight	85 kg	187.39 lbs

Data subject to change



GRUNDOBURST 1900G

FEATURES

- The GRUNDOBURST 1900G generates a max. pulling force of 1,900 kN (190 t). This allows the renewal of defective pipes from ND 250 to ND 800 in lengths of 300 m max.
- The rods are 2.25 m long and weigh 165 kg each, the permissible bending radius is only 55 m.

TECHNICAL DATA

	metric		imperial	
Pulling rig L x W x H	2.850 x 1.150 x 1.000	mm	112.20 x 45.28 x 39.37	in
Weight of the rig	3.320	kg	7,319.34	lbs
Pulling force at 250 bar	1.900	kN	427,137	lbf
Construction pit L x W	8.000 x 2.000	mm	314.96 x 78.74	in
Hydr. operating pressure	250	bar	3,625.95	psi
Old pipe Ø	ND 250–ND 800	mm	ND 9.84–ND 31.50	in
For pipe materials	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel		PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel	
New pipe Ø	up to OD 900	mm	up to OD 35.43	in
For pipe materials	PVC, PE, stoneware, grey cast iron, GFRP, steel		PVC, PE, stoneware, grey cast iron, GFRP, steel	
Bursting rod Ø	120	mm	4,72	in
Bursting rod weight	165	kg	363.76	lbs

Data subject to change

GRUNDOBURST 2500G

FEATURES

- The GRUNDOBURST 2500G sets the benchmark for trenchless pipe renewal. It generates a maximum pulling force of 2,550 kN (255 t). This allows the renewal of old pipes from ND 300 to ND 1,200.
- The rods are 2.20 m long and weigh 210 kg each. For steel pipe relining projects, mains lengths up to 1,280 m can be pulled in.

TECHNICAL DATA

	metric		imperial	
Pulling rig L x W x H	2.950 x 1.600 x 1.500	mm	116.14 x 62.99 x 59.06	in
Weight of the rig	4.100	kg	9,038.94	lbs
Pulling force at 250 bar	2.550	kN	573,262	lbf
Construction pit L x W	9.000 x 2.550	mm	354.33 x 98.43	in
Hydr. operating pressure	250	bar	3,625.95	psi
Old pipe Ø	ND 300–ND 1.200	mm	ND 11.81–ND 47.24	in
For pipe materials	PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel		PVC, PE, stoneware, ductile/ grey cast iron, AC, GFRP, steel	
New pipe Ø	up to OD 1.200	mm	up to OD 47.24	in
For pipe materials	PVC, PE, stoneware, grey cast iron, GFRP, steel		PVC, PE, stoneware, grey cast iron, GFRP, steel	
Bursting rod Ø	140	mm	5,51	in
Bursting rod weight	210	kg	462.97	lbs

Data subject to change

GRUNDOBORE – EFFICIENT SYSTEM SOLUTION

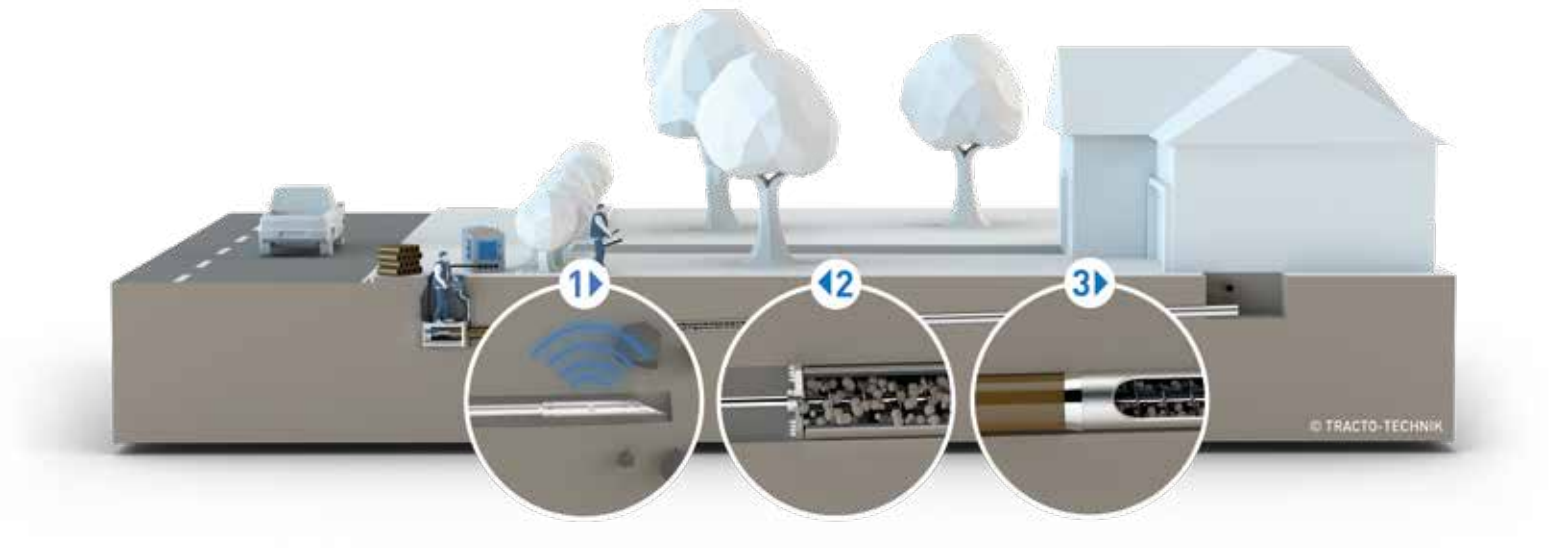
The horizontal auger boring method is a reliable static process for installing sewer service connections as well as product and steel protection pipes underneath streets and railways tracks. Installation can be either steered or non-steered. In the steerable version, the high levels of on-target precision, as required in sewer constructions, are achieved.

The compact GRUNDOBORE 200S is driven hydraulically by an external hydraulic unit and is particularly suitable for installing sewer house connections and product and protection pipes up to OD 280.

Since the GRUNDOBORE 200S support frame and auger boring unit can be installed separately, launching is possible from a 1 m manhole or exceptionally small work pit.

GRUNDOBORE

AUGER BORING UNIT

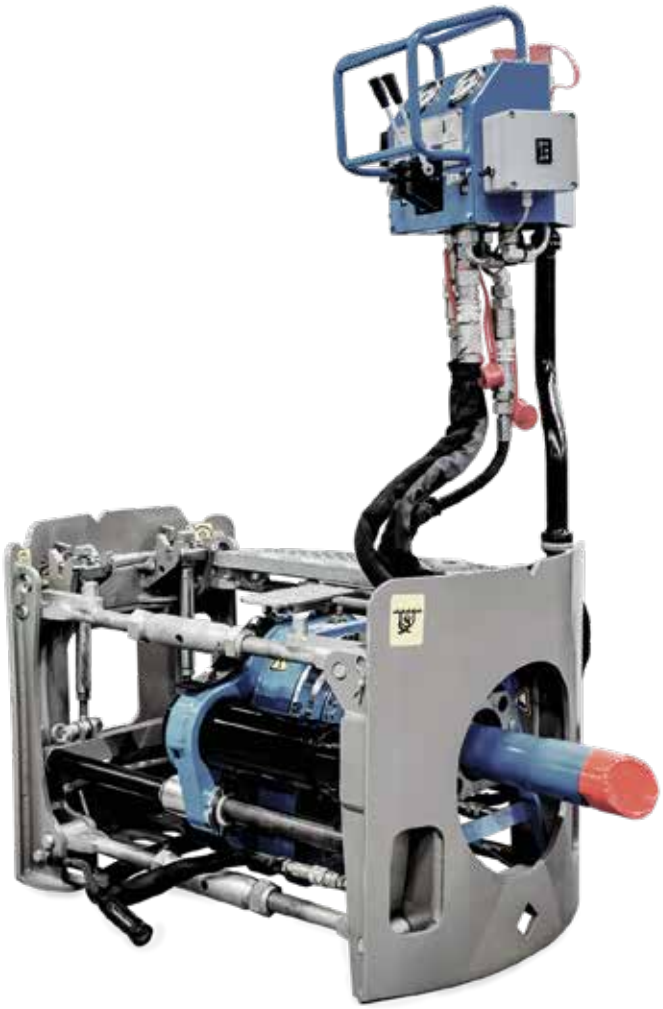


APPLICATION RANGE

- Sewer service connections
- Undercrossing of streets and railway tracks
- Longitudinal sewer installation

SPECIAL APPLICATIONS

- Linear HDD method
- Pipe bursting method



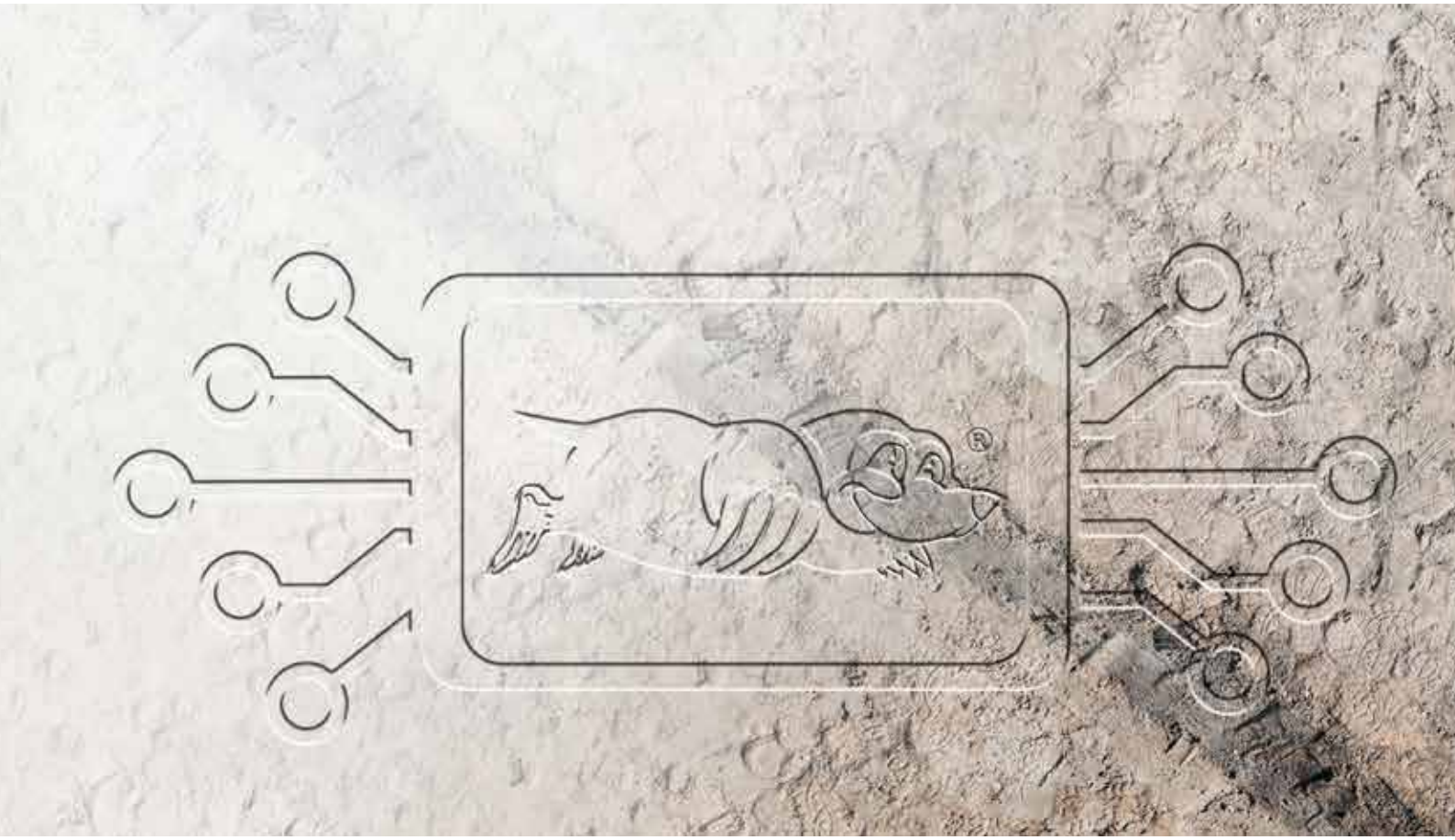
GRUNDOBORE 200S

FEATURES

- Pipe installation with high positional accuracy
- Compact, powerful rotary drive – pipe diameters up to OD 280 can be installed in extremely confined spaces
- Quick-locking rods – simple rod connection, no screwing together at the rotary drive
- Large stroke with extremely short overall length – effective rod length of 450 mm
- Semi-circular support plates – secure bracing in the 1 m manhole
- Vertical adjustment of the drilling axis of +/– 11 % possible after installation of the machine

TECHNICAL DATA

	metric		imperial	
Length x Width x Height	960 x 567 x 625	mm	37.8 x 22.3 x 24.6	in
Max. thrust	200	kN	44,960	lbs
Max. pullback	250	kN	56,200	lbf
Max. torque	3.800	Nm	2,803	lbf ft
Max. spindle speed	60	U/min	60	rpm
Weight	395	kg	870	lbs
Max. pipe OD	280	mm	11.0	in
Max. installation length	25	m	82	ft



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Our cloud-based solutions for the HDD drilling technology combine planning, execution, billing, documentation and service in one location. With the **Cockpit** you always have the very latest key machine data to review at any time of the day. With the **QuickPlanner3D** function, you can plan the shortest and safest bore path in next to no time. Our digital solutions make trenchless technology even more efficient and profitable, simply via PC, smartphone or tablet.

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OGY

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Via our worldwide service network, even after your valued purchase we will be there to assist you. Alongside our headquarters in Lennestadt, we have a total of six other TRACTO-TECHNIK customer centres in Germany as well as our worldwide sister companies and sales partners guarantee of fast supply of spare parts and immediate availability. Our competent service staff offer fast assistance to make sure that you do not lose any valuable in case of emergency - wherever you may be.

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Qualified training in theory and practice are a central concern for us to enable users and partners to achieve the greatest possible success with our products. The broad course range does not only address users, machine operators and service technicians, but equally specialists and managers, planners and contractors who would like to learn more about the versatile applications of the various NODIG systems. Our tailor-made training are held at our company locations or individually at your premises by certified trainers. Content, upcoming dates and registration details are on our website.

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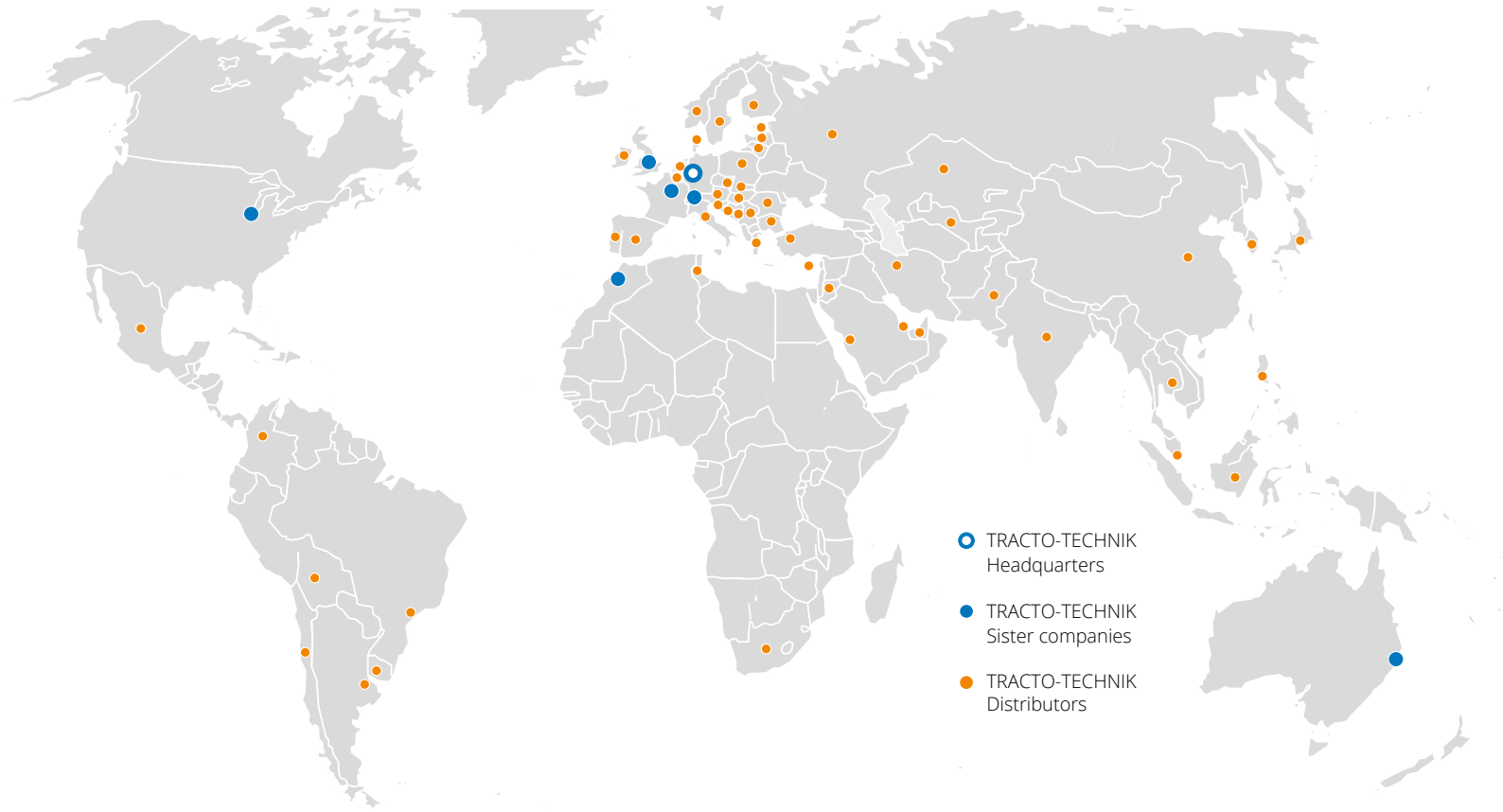
In Germany, our Geoservice provides far-reaching geological expertise to support your projects. We offer advice on planning and drilling, for example in the courses of planned bore paths or by submitting queries about building ground. Furthermore, we can write geological assessments, review construction documents to determine the potential for supplements and draw up corresponding statements.

TRACTO-TECHNIK

WORLDWIDE



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