TRACTO

TRENCHLESS AND INNOVATIVE.
THE TECHNOLOGY OF TOMORROW.

Discover:
NODIG product variety for sustainable pipeline construction

ADVANCED TRENCHLESS TECHNOLOGY

WHY DIG TRENCHES WHEN THERE ARE BETTER SOLUTIONS?

TRACTO.COM

THE WORLD IS CHANGING.

Our cities are growing faster than ever. New technologies and energy concepts require new networks. We need the expansion and improvement of infrastructures. At the same time, it is more important than ever to comprehensively and consistently consider possible environmental influences in growth and renewal.

MISSION

Our mission is to significantly reduce the negative impacts which occur when expanding the required infrastructure. That is why we develop and produce the world's best trenchless technology equipment. That is why we promote and inspire this future technology wherever we can. That is why we are committed to its expansion at all levels.

ADVANCED TRENCHLESS TECHNOLOGY

TRENCHLESS TECHNOLOGY

With TRACTO's trenchless technology, pipelines are renewed and installed without tearing up valuable surfaces. This not only saves costs, but also time and resources. Whether network expansion, house connection or pipe renewal in the areas of water, gas, electricity, e-mobility, district heating or fibre optics - it can all be done without trenches.

TOMORROW'S TECHNOLOGY

Effective infrastructure. Renewable energy. We deliver the technology of tomorrow for the pipeline construction of the future. So you can focus on your business.

OUR PRODUCT VARIETY FOR YOUR NODIG PROJECTS

WATER
FIBRE OPTICS
GAS
POWER
WASTE WATER
E-MOBILITY
WIND FARMS
PIPELINES
DISTRICT HEATING
SPECIAL SOLUTIONS

NODIG-Applications at

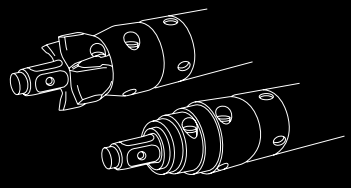
TRACTO.COM/
APPLICATIONS

NON-STEERABLE

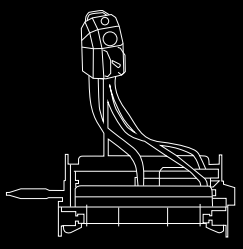
GRUNDORAM|GRUNDOCRACK

GRUNDOMAT

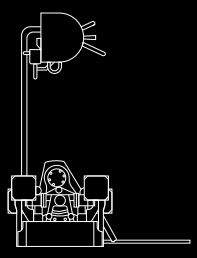
GRUNDOBURST



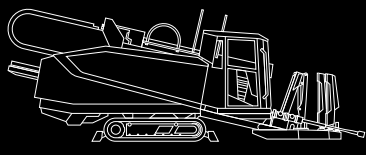
GRUNDOMAT
Soil displacement hammers
Pipe Ø ≤ 160 mm



GRUNDOSTEER
Guided rod pusher
Pipe Ø ≤ 100 mm



GRUNDOPIT
Mini HDD rigs
Pipe Ø ≤ 200 mm



GRUNDODRILL
HDD rigs
Pipe Ø ≤ 710 mm

STEERABLE

up to 4.000 mm Ø

up to 1.200 mm Ø

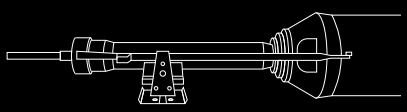
up to 800 mm Ø

25 to 200 mm Ø

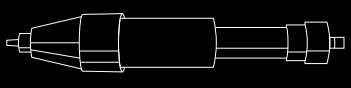
GRUNDOPIT

GRUNDODRILL

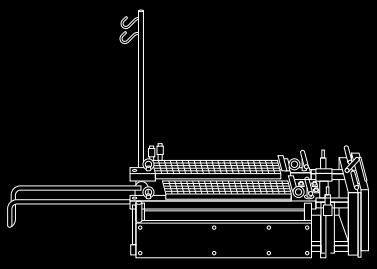
GRUNDOSTEER



GRUNDORAM
Horizontal rammers
Pipe Ø ≤ 4,000 mm

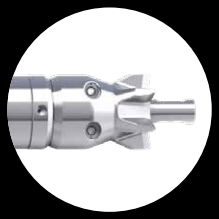


GRUNDOCRACK
Dynamic pipe bursting systems
Pipe Ø ≤ 560 mm

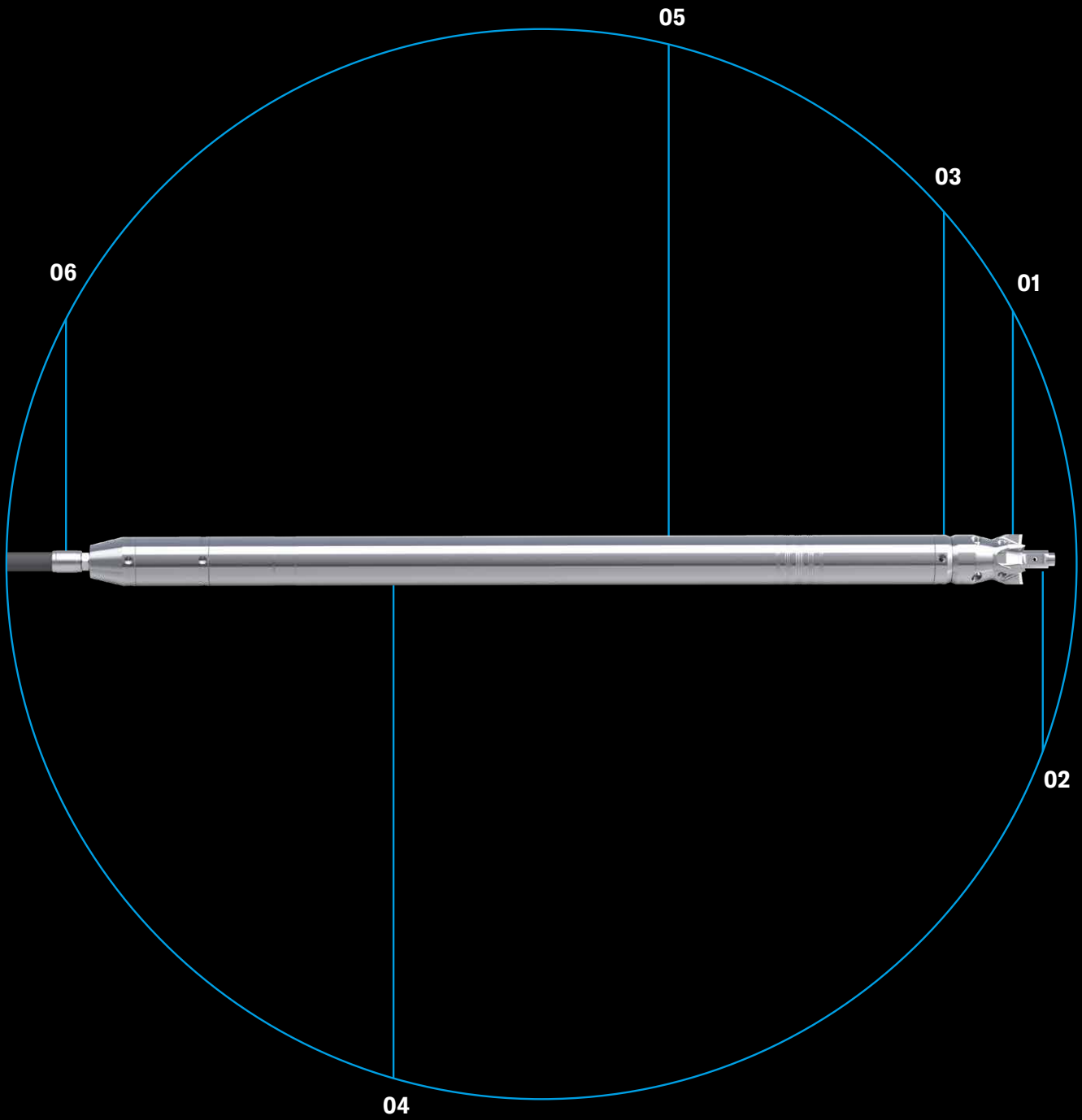


GRUNDOBURST
Static pipe bursting systems
Pipe Ø ≤ 1,200 mm

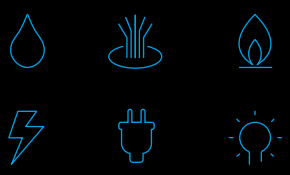
GRUNDOMAT SOIL DISPLACEMENT HAMMERS UNBEATABLE: THE ORIGINAL



All GRUNDOMAT also available with step head



APPLICATIONS

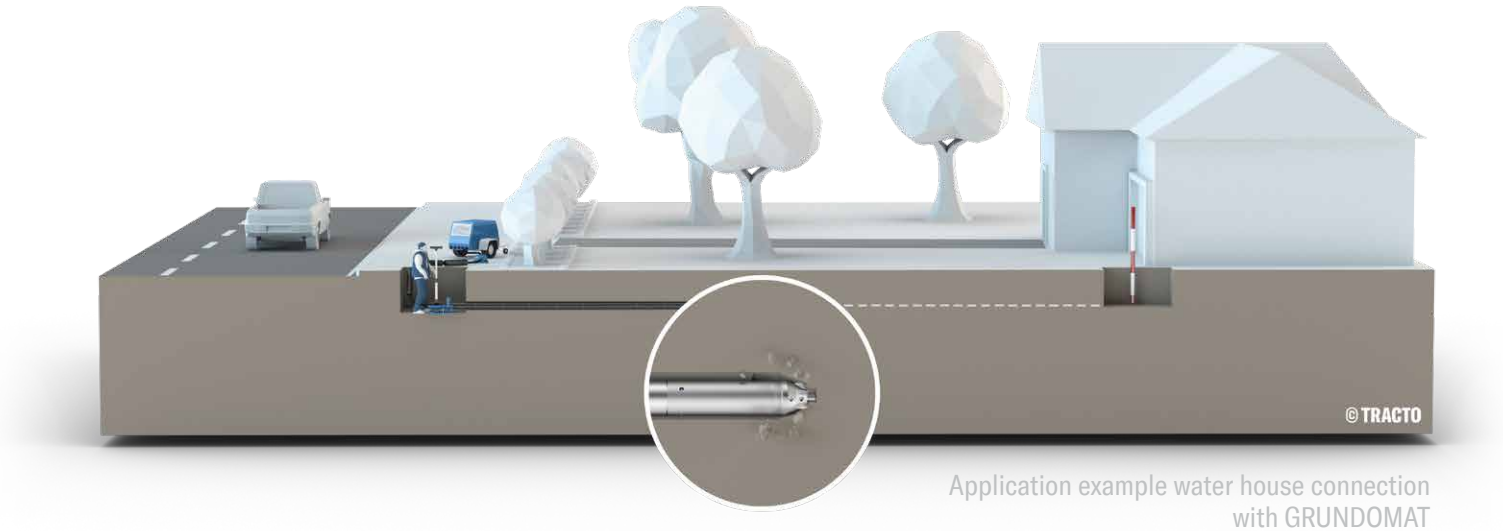


01 Crowned and stepped head with 2-stroke method
02 Concentration of impact energy in the bore direction
03 No front machine lock
04 Low-wear and low-maintenance casing
05 Easy to read wear indicator
06 Various attachment options for various applications

GRUNDOMAT SOIL DISPLACEMENT HAMMERS - For more than five decades, the pneumatically driven GRUNDOMAT 'moles' have been synonymous with on-target underground pipe installation and representative of trenchless 'mole technology'.

As the GRUNDOMAT is driven forward, the soil is displaced into the surrounding ground and compacted. This creates a duct in which short pipes with smooth, non-protruding sleeves, long plastic pipes up to OD 180 or cables up to 25 m in length can be pulled in immediately or subsequently.

The 2-stroke principle guarantees the accuracy of the GRUNDOMAT. The internal piston hits the chisel head first, which moves forward on the first stroke to create the duct and destroy any obstacles along the way. The casing is not hit until the second stroke, when it is pulled along with the attached pipe. As a result, point resistance and casing friction are more easily overcome, allowing the GRUNDOMAT to work with outstanding precision even in stony soils.



Application example water house connection with GRUNDOMAT

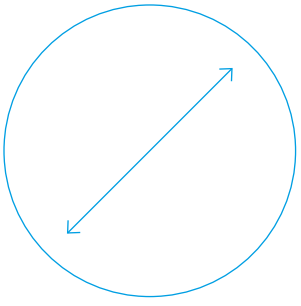
FACTS

METHOD

STEERABLE

NON_STEERABLE

PIPE DIAMETER



45 – 180 MM Ø

MAIN APPLICATIONS

- **HOUSE CONNECTIONS**
- **UNDER-CROSSINGS**

SPECIAL APPLICATIONS

- **DYNAMIC PIPE RENEWAL** (from type 95)
- **PIPE RAMMING** (from type 95)
- **STEEL PIPE EXTRACTION**
- **PILE FOUNDATIONS**

IN FIVE SENTENCES

1

Strikingly precise

Hardly anything can knock GRUNDOMAT off course. The 2-stroke method with movable head ensures maximum penetrating power and dead-on-target thrust. The soil displacement hammer can be used in almost all displaceable soils - with the crowned head even in very stony and densely bedded soils.

2

Enormously durable

A sophisticated sliding and sealing technology ensures extraordinary durability and everlasting maximum performance of the GRUNDOMAT. At the same time, the service expenditure is minimal. The soil displacement hammer has been designed to protect the force transmission areas from any damages.

3

Extremely versatile

Thanks to attachment options such as reverse cone, pull sleeve or PE pipe connection, the GRUNDOMAT can be applied in all soil conditions - e.g. horizontally for immediate pipe installation, subsequent pipe pulling and steel pipe extraction or vertically for pile foundations.

4

Totally reliable

The premium quality of all components - such as an internally and externally chromed casing or specially hardened, corrosion-protected pistons, chisels and heads - makes the GRUNDOMAT a model of reliability and guaranteeing maximum safety during operation.

5

Super ergonomic

The operation of the GRUNDOMAT is extremely comfortable and can be adapted to individual needs. For example, gear shifting: whether by simply turning the hose with the push control or simply flipping a lever with the servo control - the operator remains in control.

PERFORMANCE DATA

TYPE		45	55	65	75	85	95	110	130	145	180
Diameter (mm)		45	55	65	75	85	95	110	130	145	180
Length (mm)		979	1,108	1,328	1,465	1,550	1,732	1,751	1,740	2,010	2,212
Weight (kg)		9	14.4	25	34	46	65	96	117	168	260
Air consumption (m^3/min)		0.35	0.4	0.7	1.0	0.95	1.5	1.6	2.6	3.4	4.5
Thrust control (min^{-1})	No. of strokes	530	470	450	385	370	325	320	320	–	–
	Servo control	–	–	460	400	370	325	320	320	310	260
Pipe Ø ≤ (mm)		32	45	50	63	75	85	90	110	125	160

All data without guarantee

TYP		S45	S65	S75	S95	S110	S130
Diameter (mm)		45	65	75	95	110	130
Length (mm)		894	1,097	1,295	1,532	1,548	1,604
Weight (kg)		8	18	28	56	86	107
Air consumption (m^3/min)		0.35	0.65	0.8	1.3	1.4	2.4
Thrust control (min^{-1})	No. of strokes	580	570	490	370	370	370
	Servo control	–	640	460	370	370	370
Pipe Ø ≤ (mm)		32	50	63	85	90	110

All data without guarantee

GRUNDOMAT in detail. More at

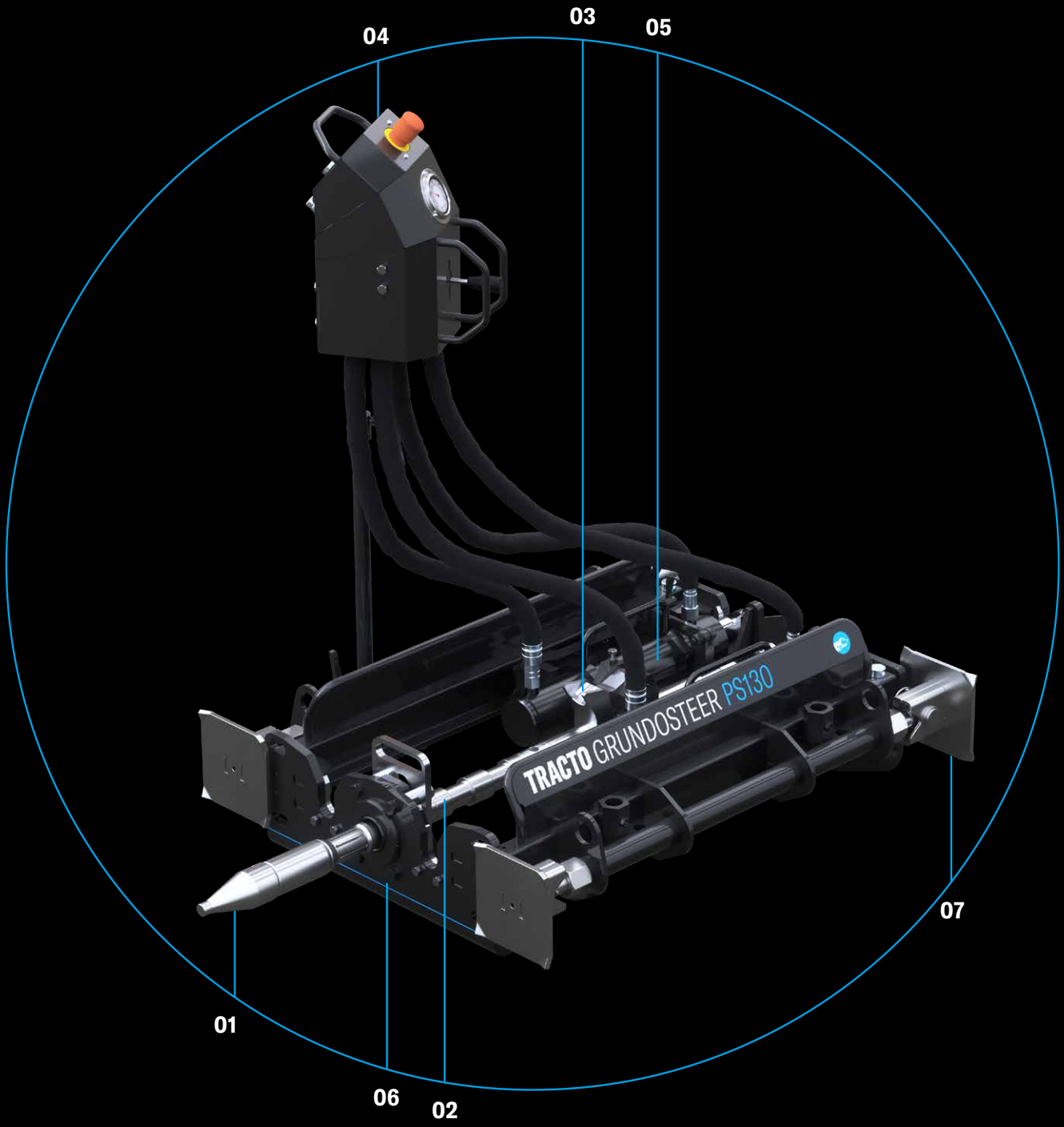
TRACTO.COM/ GRUNDOMAT

TWICE AS SUSTAINABLE

New house connections for eco-electricity with the soil displacement hammer

Project:	The city of Landsberg in Germany is 100 % hydroelectric. During the renovation of the pavements and cycle paths on the Hindenburgring, a partially four-lane road in the old town, old electricity service connections were replaced with new OD 63 mm pipes in lengths of 6 m, 11 m, 5 m, 8 m and 4 m using the soil displacement hammer.
Client:	Public utility City of Landsberg
Execution:	E.K.L. GmbH
In use:	GRUNDOMAT 75
Duration:	3 working days

GRUNDOSTEER GUIDED ROD PUSHER SIMPLY FULL TARGET CONTROL



APPLICATIONS

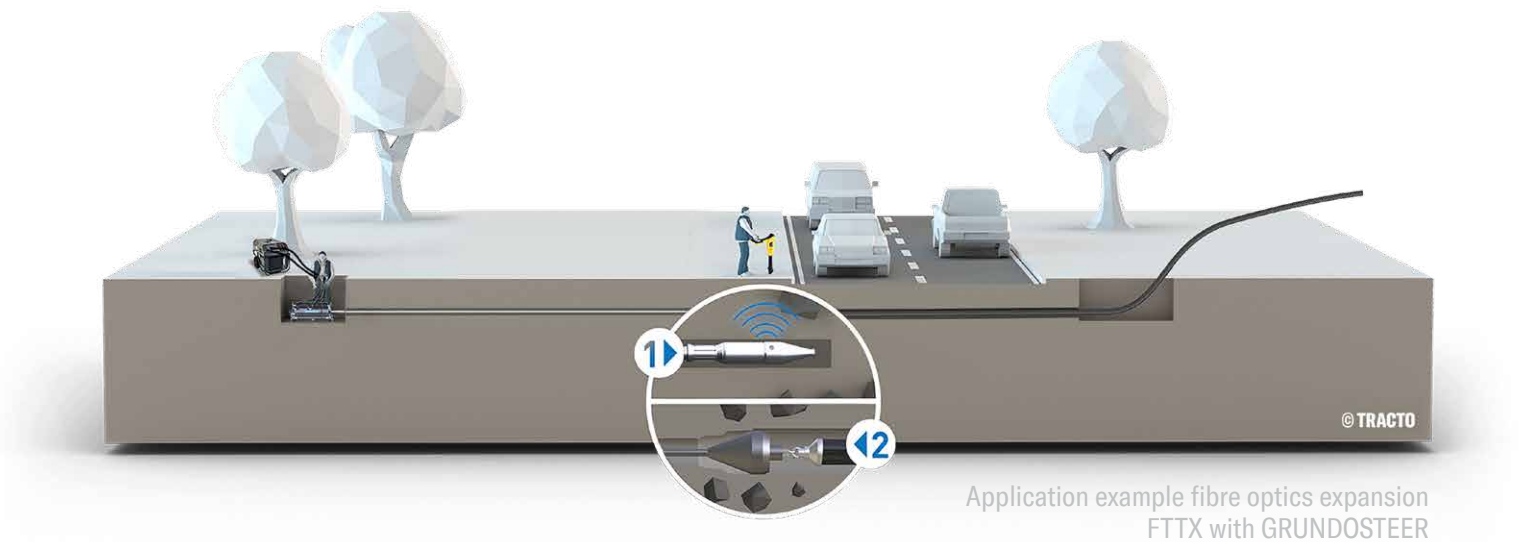
01 Adjustable steering head with integrated sonde
02 Robust SIMCON rods
03 Insensitive thrust ratchet
04 Easy to operate, height-adjustable control unit
05 Adjustable insertion position of the hydraulic cylinders
06 Dismountable base frame
07 Integrated stabiliser

GRUNDOSTEER PS130

GRUNDOSTEER GUIDED ROD PUSHER – By combining static soil displacement and easy correction of the driving direction, the GRUNDOSTEER bridges the gap between the GRUNDOPIT mini HDD rigs and the GRUNDOMAT soil displacement hammers.

With the GRUNDOSTEER, a pilot bore is initially carried out along the planned bore path. Meanwhile, the locatable head is tracked above ground with a locating device. This way, deviations from the route can be detected and, if necessary, corrected by rotating the rods in the desired direction. Upon arrival at the target, the head is replaced by an expander and the attached pipe is installed as it is pulled back. However, the use of drilling fluid is not necessary with rod pushing.

The robust and compact GRUNDOSTEER can work from a pit to the building or from the building through a core hole in the house wall. Thanks to the reliable guiding principle and uncomplicated directional correction, even less experienced operators can produce trenchless on-target house connections or short undercrossings.



Application example fibre optics expansion
FTTX with GRUNDOSTEER

FACTS

METHOD

GUIDED
UP TO 25 M

NON-STEERABLE

PIPE DIAMETER

MAX. 100 MM Ø

MAIN APPLICATIONS

HOUSE CONNECTIONS

UNDER-CROSSINGS

PIT AND CELLAR START POSSIBLE

IN FIVE SENTENCES

1
Perfect symbiosis

The GRUNDOSTEER combines proven trenchless methods in one easy-to-use device. As with the soil displacement hammer, the soil is displaced as the rods are pushed forward. The guiding principle and the pipe installation in two steps are similar to the HDD mode.

2
Flexible pit starter

The guided rod pusher is ideal for establishing all types of house connections from the pit to the building or in the opposite direction in all displaceable soils. Even short undercrossings are possible with the GRUNDOSTEER in a quick and easy way.

3
Clever head

With the GRUNDOSTEER, the direction is constantly controlled by locating the guiding head and can be corrected at any time. To do this, the position of the head is simply read off the time scale on the rod connector and the direction is changed, if necessary, by rotation.

4
Favourable starter

The investment for the GRUNDOSTEER including accessories is relatively low. An existing GRUNDOSCOPE aiming frame can be used for target alignment. A simple locating device is sufficient for location and a customary hydraulic power unit is sufficient as a drive.

5
Ergonomic lightweight

The base frame of the GRUNDOSTEER can be dismantled into individual parts, the rods have a force-saving bolt connection. The height-adjustable control panel allows comfortable working while standing, the feed speed is regulated by a smooth-running hand lever.

PERFORMANCE DATA

TYPE	GRUNDOSTEER PS130
Pullback/thrust force (kN)	130
Length (mm)	995
Width (mm)	760
Centre axis (mm)	120
Weight (kg)	170
Base frame individual parts (kg)	< 54
Rod Ø (mm)	45 x 500
Rod weight (kg)	5.7
Guiding head Ø (mm)	58
Max. expanding Ø (mm)	100

All data without guarantee

GRUNDOSTEER in detail. More at

TRACTO.COM/ GRUNDOSTEER

BROADBAND EXPANSION IN BERLIN

Guided rod pushing method enables pipe installation under tram tracks

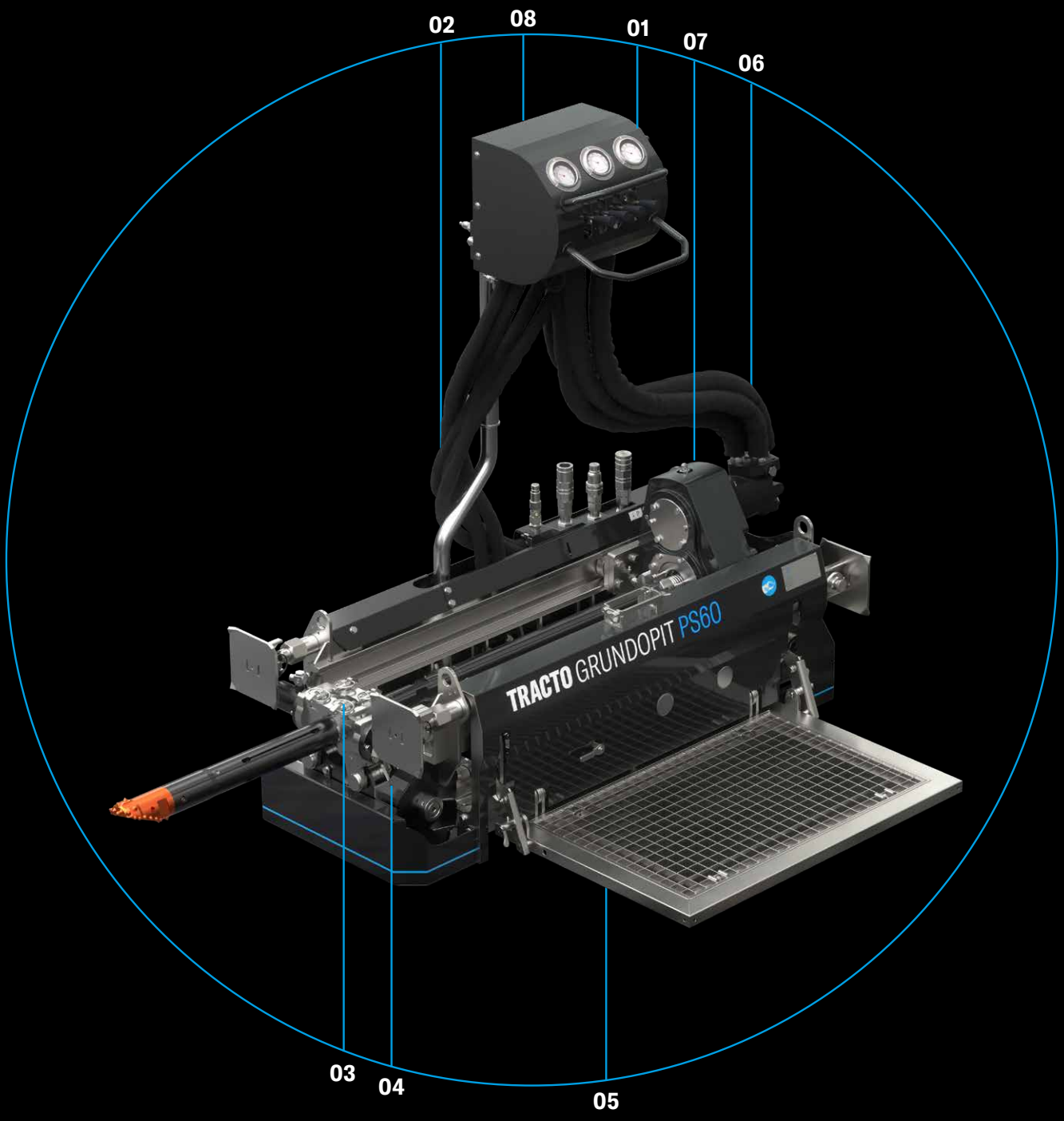
Project: As part of broadband expansion, three OD 50 PE pipes were installed in a bundle under the 'Breite Straße' road in Berlin-Pankow, in the middle of which a tramway with two rail tracks runs. The use of a soil displacement hammer was not authorised due to low coverage. Although the overhead tram line made it difficult to locate the pilot bore, the target was hit and the pipe bundle was pulled in without any problems.

Execution: F+E Tiefbau

In use: GRUNDOSTEER PS130

Duration: 1 working day

GRUNDOPIT MINI HDD RIGS SMALL POWERHOUSES



APPLICATIONS

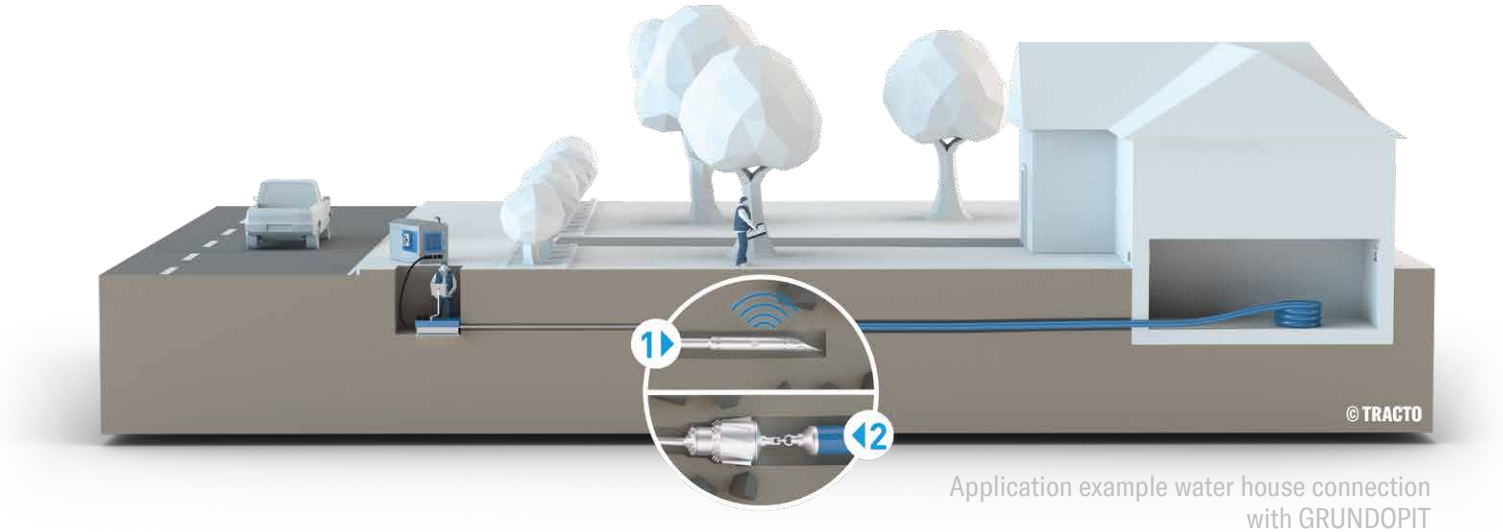
01 Connecting the hydraulic lines
02 Drill rod effective length 750 mm
03 Hydraulic clamp for rod change
04 Thrust via cylinder drive
05 Fold-out work platform
06 Twin-step rotation
07 Hydraulic tensioning in the working pit
08 Fold-out control panel

GRUNDODPIT PS60

GRUNDOPIT MINI HDD RIGS are used when the bore path requires the steerability of the bore head. This is the case within existing infrastructure, in confined spaces, in challenging terrain such as slopes and/or in difficult soils.

The compact, easy-to-handle small drilling rigs can be used to quickly and economically install service connections for gas, water, electricity, fibre optic cables and sewers, as well as longitudinal installations up to 100 m in length. The GRUNDOPIT HDD rigs can be used to install service lines as far as a small pit in front of the building, directly into the building or into the basement, and in the opposite direction. In this way, these mini drilling rigs close the gap between the steerable midi GRUNDODRILL flush drilling rigs and the non-steerable GRUNDOMAT soil displacement hammers.

Depending on the type of bore, pipe diameter, soil type, bore length and degree of difficulty, you can choose between two GRUNDOPIT models for starting from a pit.



Application example water house connection with GRUNDOPIT

FACTS

METHOD

STEERABLE

NON-STEERABLE

PIPE DIAMETER

Ø 80 - 250 MM

MAIN AAPPLICATIONS

HOUSE CONNECTIONS

DRAINAGE BORES

UNDER-CROSSINGS

IN FIVE SENTENCES

1
Small quick starters

The GRUNDOPIT mini HDD rigs are ready for use in no time at all. A truck-mounted crane or mini-excavator is completely sufficient for handling. And thanks to the compact dimensions of the rigs, only small excavation pits are required, which are quickly made and cause only minimal excavation.

2
Steerable house mates

Thanks to their steerability, the GRUNDOPIT mini HDD rigs are virtually predestined for making house connections under difficult conditions: right into a small pit in front of the building, directly into the building or the cellar and in the opposite direction in each case.

3
Compact powerhouses

Despite their compact dimensions, the GRUNDOPIT mini drill rigs are very powerful. Push and pull forces of up to 60 kN paired with high torques and speeds enable the installation of pipes even through challenging soils. The robust design comes on top of that.

4
Speedy high-flyer

With the super-compact GRUNDOPIT PS40, it is possible to drill flat over existing cable networks from a pit that is only 1 m wide. This is particularly practical for establishing fibre-to-the-home (FTTH) connections quickly and directly from the pavement.

5
Efficient minis

The right drive technology ensures that there is always sufficient hydraulic energy available for pilot bore and pulling the pipe. Suitable mixing systems and drilling tools ensure that the GRUNDOPIT mini drilling rigs perform reliably even under difficult conditions.

PERFORMANCE DATA

TYPE	GRUNDOPIT PS40	GRUNDOPIT PS60
Thrust and pullback force (kN)	40	60
Max. Torque (Nm)	1,000	1,500
Drill rod Ø (mm)	45	51
Rod length | Number (mm)	500	750
Pilot bore Ø (mm)	65	80
Lx W x H (transport position) (mm)	955 x 1,175 x 895	1,375 x 620 x 880
Lx W x H (working position) (mm)	955 x 1,175 x 1,500	1,385 x 1,100 x 1,450
Expanding-Ø* ≤ (mm)	150	250
Pipe outer Ø* ≤ (mm)	110	200
Bore length* ≤ (m)	40	80

* Depending on soil | All data without guarantee

STEEP RISE FOR MINI-HDD RIG

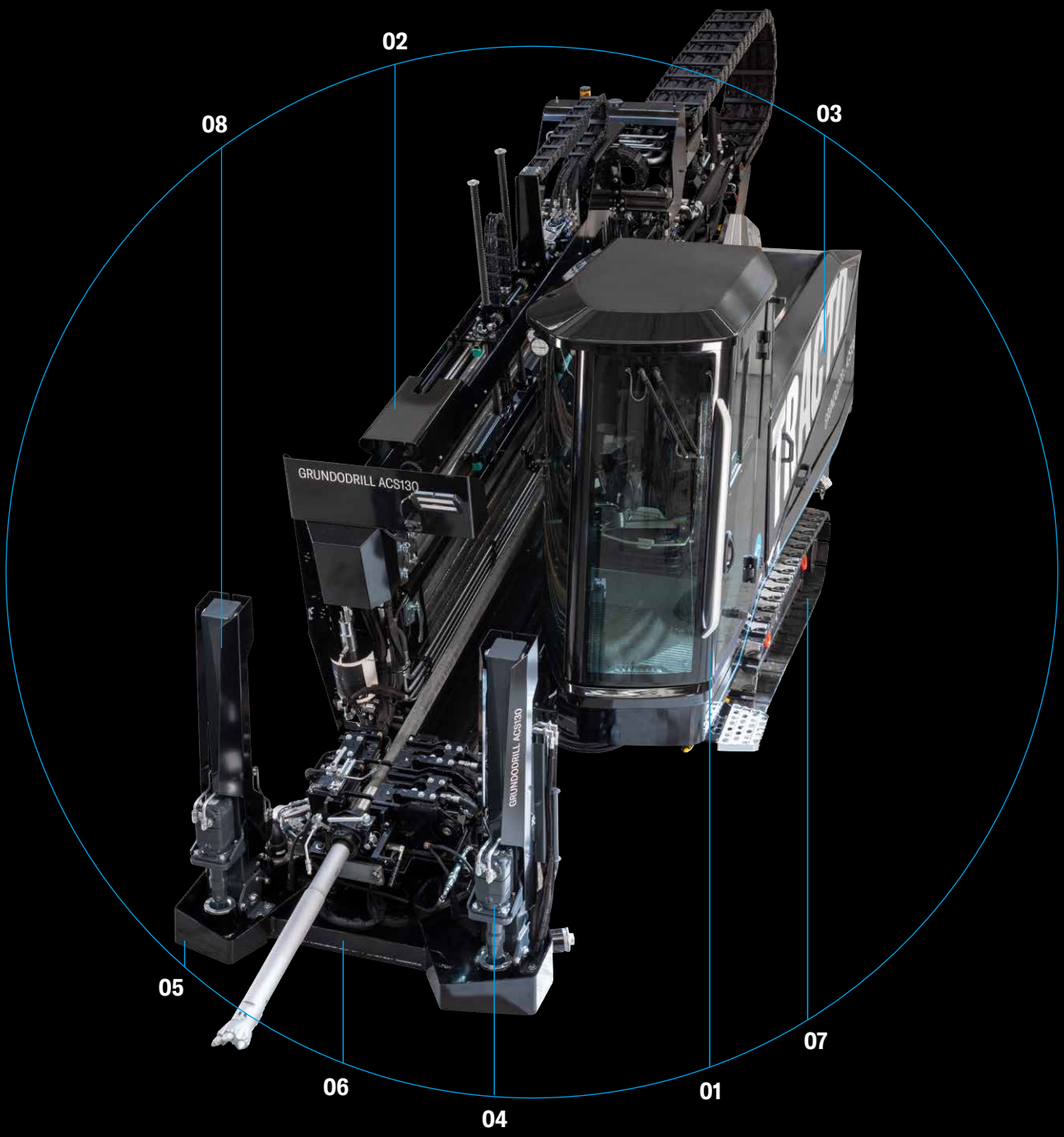
No alternative to trenchless: New water connection through a steep slope

Project:	For a new water house connection, a 46 m long pipe was installed from the street through a steep slope directly into the customer's house. The bore ran underneath existing buildings, under stairs, under a hallway and a paved terrace, a garden bed, a meadow and various pathways.
Client:	Private customer / KV Cochem-Zell
Execution:	Oliver Pöllmann GmbH
In use:	GRUNDOPIT PS60
Duration:	1 1/2 working days

GRUNDOPIT in detail. More at

TRACTO.COM/ GRUNDOPIT

GRUNDODRILL HDD RIGS
ALWAYS ONE TURN AHEAD



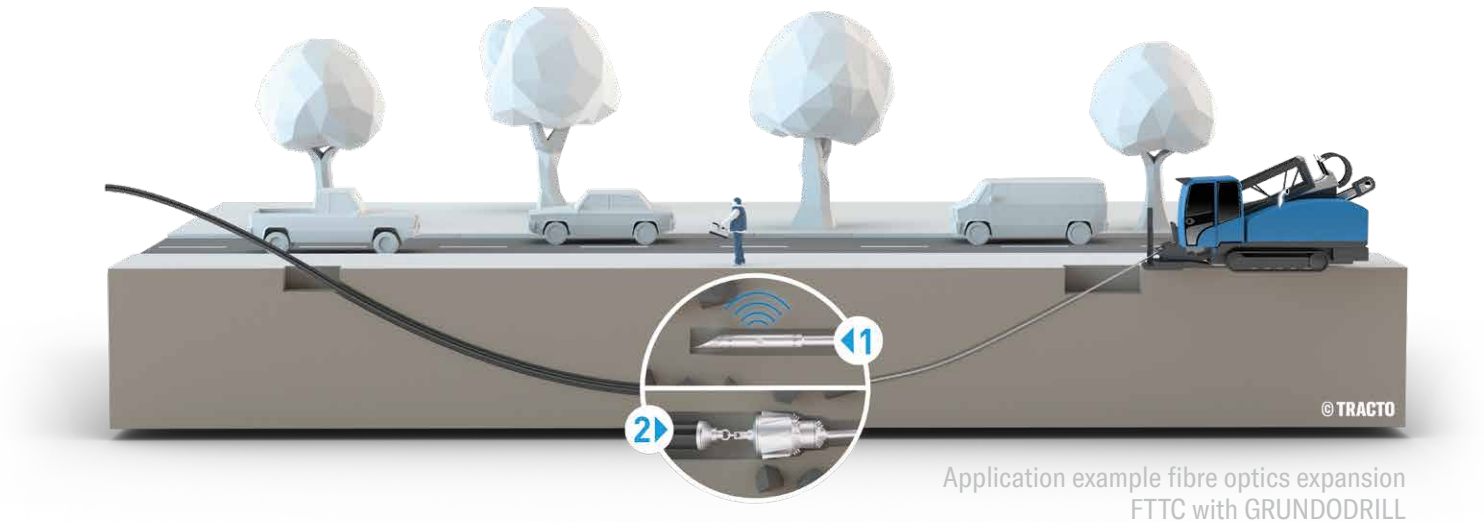
APPLICATIONS

01 Comfort cabin with various equipment options
02 Optimum drill rod handling with fully automatic loading system
03 High rotation and rinsing capacities, powerful drive
04 Optional anchor drilling system for high stability
05 Anchor plate as a catch basin for the drilling fluid
06 Support plates for alignment and positioning
07 Undercarriage with rubberised steel tracks, with various chain versions
08 Hydraulic loading crane for self-sufficient drill rod handling

GRUNDODRILL HDD RIGS - Horizontal Directional Drilling (HDD) is one of the most complex, yet versatile and flexible trenchless techniques. The HDD rig's steerable drill head is used to create a pilot bore along a flexible bore path. As the drill rods are pulled back, an expansion head widens the borehole and the attached pipe is pulled into the bore path. An organic drilling fluid assists the process. This allows pipes to be installed under or alongside roads and watercourses, even in rocky ground.

The powerful and versatile GRUNDODRILL drilling rigs in the performance classes up to 300 kN feature innovative technical solutions combined with high flexibility and durability. This makes them particularly productive and economical. With special software solutions for fleet management, documentation and planning, productivity can be further increased.

Thanks to the all-round glazing of the comfort cabin, the operator has the best possible all-round view of the job site without having to swing out the cabin. The latest generation of GRUNDODRILL features an intuitive operating concept with a high degree of automation, enabling highly efficient operation and even remote-controlled drilling.



Application example fibre optics expansion
FTTC with GRUNDODRILL

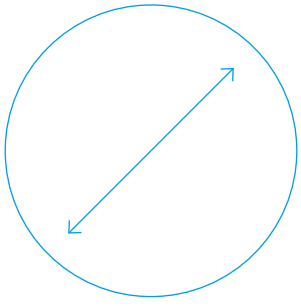
FACTS

METHOD

STEERABLE

NON-STEERABLE

PIPE DIAMETER



100 – 900 MM Ø

MAIN APPLICATIONS

- LONGITUDINAL BORES
- UNDER-CROSSINGS
- CABLE GUIDED BORES
- ROCK BORES

SPECIAL APPLICATIONS

- HORIZONTAL DRINKING WATER WELLS
- IRRIGATION & DRAINAGE
- GEOTECHNICAL APPLICATIONS
- FURTHER INNOVATIVE APPLICATIONS

IN FIVE SENTENCES

1
Versatile multi-talents

Longitudinal bores, undercrossings, rock drilling or cable-guided drilling for locating in difficult terrain, you can do it all with the versatile GRUNDODRILL HDD rigs. Perfectly matched drilling tools guarantee optimum drilling progress in any soil.

2
Premium value

Like all Nodig systems from TRACTO, the GRUNDODRILL rigs stand out for their premium quality. Our in-house production uses only high-quality steel, which is elaborately tempered. In addition, we only install first-class components and put all parts through their paces.

3
Top Performer

All GRUNDODRILL models achieve high rotation and flushing performance with low consumption of resources and operating materials. In combination with their long service life and low wear, the fluid-assisted HDD rigs "Made in Sauerland" are particularly efficient and economical.

4
Mobile control

The fluid-assisted HDD rigs of the GRUNDODRILL JCS/ACS series are fully remote controllable even in drill mode. All functions can be conveniently controlled from outside the operator's ca bin. The hard-wearing remote stands up to even the toughest jobsite conditions.

5
Comfort workplace

Whether with or without remote control - all GRUNDODRILL rigs offer maximum operating comfort. Whether it's the convenient control via joysticks, the all-round glazing of the cabin for optimum visibility or the spring-mounted comfort seat - a workplace you won't want to leave.

PERFORMANCE DATA

TYPE	GRUNDODRILL 5X	GRUNDODRILL 15XP	GRUNDODRILL 15XPT	GRUNDODRILL 20N TD73 / TD82 / TD82 4.5	GRUNDODRILL 20ACS EL D80 / EL D101 / TD 82 / TD73
Thrust and pullback force (kN)	50	147	160	180 / 200 / 200	160 / 200 / 200 / 180
Max. Torque (Nm)	1.627	4.500	6.500	7.500 / 10.000 / 10.000	inner rod 1.200 / 2.500 / - / - outer rod 5.500 / 9.000 /10.000/ 7.500
Effective rod length (mm) | Quantity (pcs.)	1.525 | 40	3.000 | 70	3.000 | 60	3.000 / 3.000 / 4.500 | 75 / 70 / 60	3.000 | 70 / 48 / 70 / 75
L x B x H (transport position) (mm)	3.830 x 915 x 1.950	6.500 x 1.850 x 2.400	6.380 x 1.850 x 2.400	6.700 x 2.350 x 2.620 | 6.700 x 2.350 x 2.620 | 8.090 x 2.350 x 2.950	6.700 x 2.350 x 2.620
L x B x H (working position) (mm)	4.130 x 1.580 x 1.500	7.250 x 2.900 x 2.700	Width with mud pump 7.250 x 3.100 x 2.700	7.150 x 3.050 x 3.150 | 7.150 x 3.050 x 3.150 | 8.050 x 2.350 x 3.140	cabin swivelled in 7.150 x 2.350 x 3.150 cabin swivelled out 7.150 x 3.050 x 3.150
Engine type | Power (kW)	Kohler 56HP Stufe V	Cummins B4.5 - C165 | 123	Cummins B4.5 - C165 | 123	Cummins B4.5-C165 | 123	Cummins B4.5-C165 | 123
Upsizing-Ø* ≤ | Pipe outer Ø* ≤ (mm)	250 | 200	500 | 400	500 | 400	600 | 500	355 / 600 /600 / 600 | 250 / 500 / 500 / 500
Bore length* ≤ (m)	100	350	400	400	≤ 200 / 400 / 400 / 400

TYP	GRUNDODRILL 28Nplus	GRUNDODRILL JCS130	GRUNDODRILL ACS130	GRUNDODRILL JCS300	GRUNDODRILL ACS300
Thrust and pullback force (kN)	280	130	130	300	300
Max. Torque (Nm)	11.000	EL-D67 4.500	EL-D80/EL-D67 4.500 EL-D80 (inner rod.) 1.200	13.000	outer rod 13.000 inner rod 2.800
Effective rod length (mm) | Quantity (pcs.)	3.000 | 96	3.000 | 56	3.000 | 44/56	4.500 | 70	3.000 | 70
Lx B x H (transport position) (mm)	7.600 x 2.530 x 2.900	7.020 - 7.484 x 1.910 x 2.782	7.020 - 7.484 x 1.910 x 2.782	8.760 x 2.550 x 3.205	7.620 x 2.550 x 2.835
Lx B x H (working position) (mm)	7.750 x 3.420 x 3.750	7.175 - 7.537 x 2.577 x 4.652	7.175 - 7.537 x 2.577 x 4.652	9.050 x 3.220 x 4.370	7.462 x 3.223 x 5.030
Engine type | Power (kW)	Cummins B6.7-C300 | 224	Cummins F3.8 | 115	Cummins F3.8 | 115	Cummins B6.7-C310 | 231	Cummins B6.7-C310 | 231
Upsizing-Ø* ≤ | Pipe outer Ø* ≤ (mm)	900 | 710	500 | 400	JET mode 500/400 | ROCK mode 355/250	900 | 710	900 | 710
Bore length* ≤ (m)	500	300	JET mode 300 | ROCK mode 200	500	500

* Depending on soil | All data without guarantee

GRUNDODRILL in detail. More at

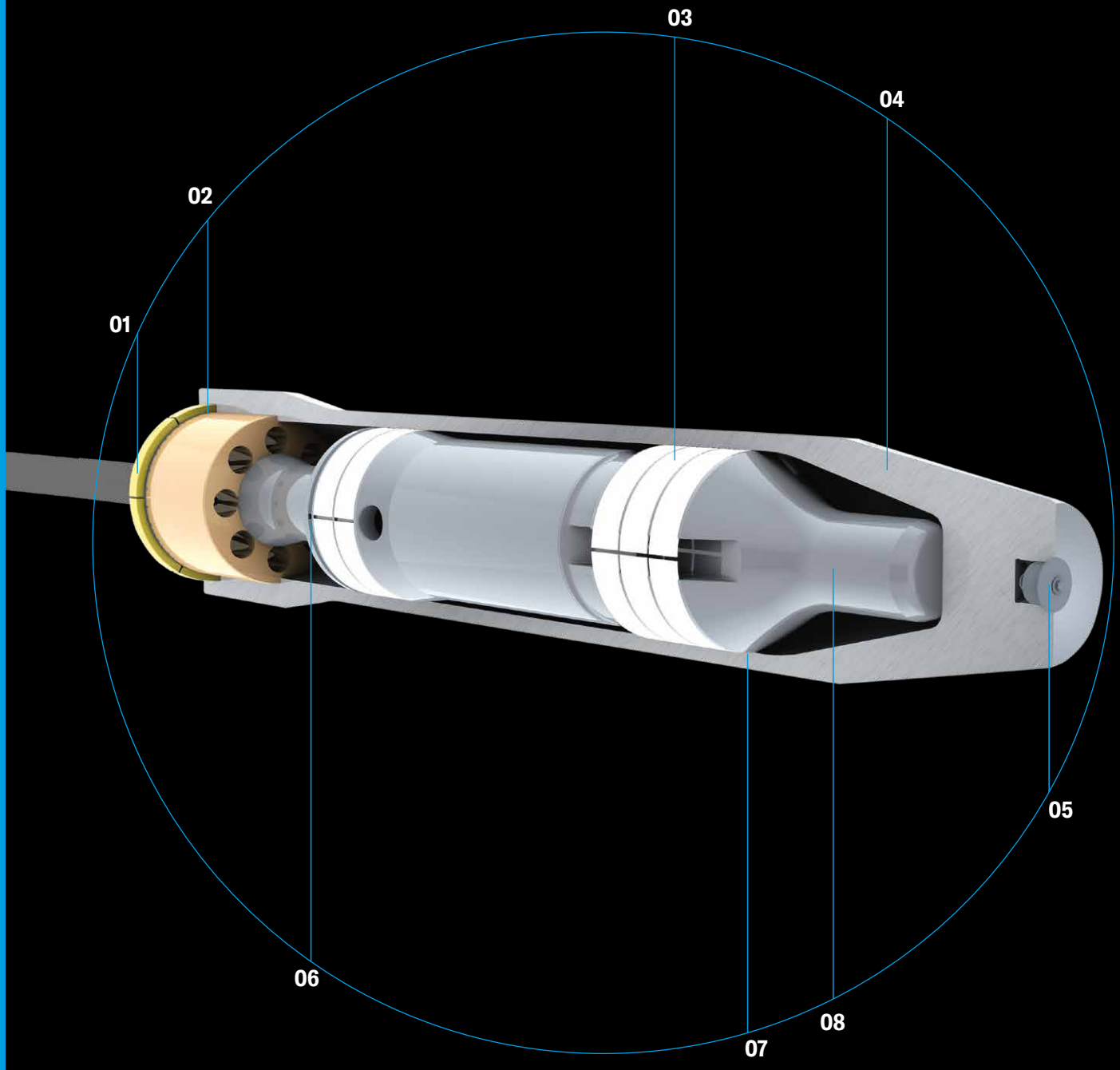
TRACTO.COM/
GRUNDODRILL

INTO THE SEA WITH HDD

Gentle installation of a seawater transport pipeline in the Baltic Sea

Project:	In order to supply the seawater spa 'Grömitzer Welle' with water from the Baltic Sea, a new 160 mm OD transport pipeline was installed from the connection point of the existing pipeline on the beach to the extraction point in the Baltic Sea. Divers were used to connect the approximately 400 m long pipeline underwater at a depth of 3.80 m.
In use:	GRUNDODRILL 28Nplus
Client:	Tourismus Service Grömitz
Execution:	Paasch Rohrleitungsbau GmbH & CO. KG
Duration:	3 days for pilot bore and pipe pulling

GRUNDORAM PIPE RAMMERS
THE DRIVING FORCE



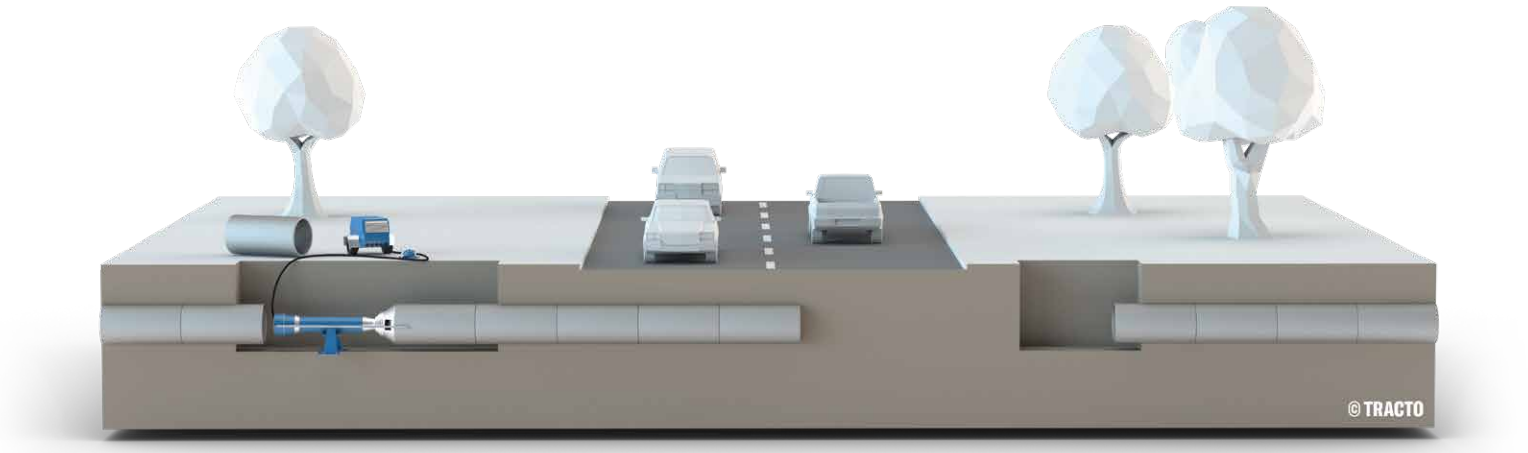
APPLICATIONS

01 Segment rings for securing the control stud
02 Permanently elastic mounted control stud
03 Piston seal rings prevent friction
04 Solid, one-piece housing - heavy duty
05 Thread for pulling eye for pipe sanitation application
06 Piston seals reduce air consumption
07 Inner chrome-plated housing
08 Two-piece piston - optimum vibration behaviour and reduction of the risk of breakage

GRUNDORAM PIPE RAMMERS – The pneumatic pipe rammers develop an impact energy of up to 40,500 J for pipe installation in all types of soil (except mud, swamp and non-displaceable rocky soils) and other horizontal and vertical soils) and other horizontal and vertical applications.

The most common GRUNDORAM application is dynamic pipe ramming, whereby steel pipes up to ND 4,000 mm are driven underneath roads, railway tracks, buildings and rivers with little overburden and without press abutments. Steel pipes are used as media pipes, e.g. in pipeline construction or as protection pipes for bundling supply and disposal lines, but also for drainage or for the construction of underpasses, smaller culverts and pipe screens for tunnel construction.

In addition to dynamic pipe ramming, the powerful and robust GRUNDORAM machines can be used to support HDD drilling (HDD Assist) and, with the appropriate accessories, as crackers for dynamic pipe renewal, as well as vertically for laying foundations and piles and for well construction.



Application example pipeline construction with GRUNDORAM

FACTS

METHOD

STEERABLE

NON-STEERABLE

PIPE DIAMETER

UP TO 4,000 MM Ø

MAIN APPLICATIONS

- UNDER-CROSSINGS
- PIPELINE CONSTRUCTION

SPECIAL APPLICATIONS

- PASSAGES & TUNNELS
- DRAINAGE
- HDD ASSIST & RESCUE
- VERTICAL - APPLICATIONS
- DYNAMIC PIPE RENEWAL

IN FIVE SENTENCES

1

Strong & dynamic

The powerful GRUNDORAM pipe rammers are suitable for various applications in all displaceable soils. Their most common use is dynamic pipe ramming. For this, no pressing abutments are required, which significantly reduces set-up times. The short and mini machines are perfect for pipe-in-pipe installation where space is limited.

2

Powerful & accurate

With GRUNDORAM, steel pipes with diameters of no less than 4,000 mm can be driven under roads, railway tracks and rivers in a very economical way. Because the pipe is open at the front and penetrates the ground, there is no need to move obstacles, ensuring pinpoint accuracy.

3

Productive & variable

Take a rammer equipped with a pulling eye and reverse gear, an expander and a winch - and you have a GRUNDOCRACK system for dynamic pipe renewal. It can be used to renew defective pipes made of brittle materials in closed construction and to rehabilitate them using the Calibre or TIP method.

4

Versatile & helpful

GRUNDORAM is also ideal for successfully completing complicated HDD jobs. With so-called HDD Assist & Rescue methods, you can use dynamic impact to loosen stuck pipes or drill rods, for example. And when applied vertically, the rammers can be used to install foundations or piles and more.

5

Tough & robust

You can rely on the GRUNDORAM. The solid casing is produced from a forged piece. The piston is elaborately hardened on heavily stressed surfaces. The weight ratio between casing and piston is optimally determined. The driving power is correspondingly high, the wear correspondingly low - for all 13 models and the mini machines.

PERFORMANCE DATA

TYPE	ATLAS	TITAN	OLYMP	HERKULES	GIGANT	KOLOSS
Machine-Ø (mm)	130	145	180	216	270	350
Ø rear cone (mm)	145	160	195	235	300	400
Length (mm)	1,453	1,545	1,690	1,913	2,010	2,341
Weight (kg)	95	137	230	368	615	1,180
Air consumption (m^3/min)	2.7	4.0	4.5	6.5	12.0	20.0
No. of strokes (min^{-1})	320	310	280	340	310	220
Impact energy (J)	420	800	890	1,440	2.86	6,820
From pipe size (ND)	50	100	100	120	200	280

TYP	GOLIATH	TAURUS	APOLLO	MINI-ATLAS	MINI-OLYMP	MINI-GIGANT
Machine-Ø (mm)	460	600	800	125	180	270
Ø rear cone (mm)	510	670	900	140	230	330
Length (mm)	2,852	3,645	4,400	946	1,080	1,230
Weight (kg)	2,465	4,800	11,500	60	175	460
Air consumption (m^3/min)	35.0	50.0	100	1.7	3.5	10.0
No. of strokes (min^{-1})	180	180	180	580	500	430
Impact energy (J)	11,600	18,600	40,500	180	720	2,000
From pipe size (ND)	380	380	600	50	100	200

All data without guarantee

GRUNDORAM in detail. More at

TRACTO.COM/ GRUNDORAM

ON TARGET, STROKE AFTER STROKE

ND 2000 steel pipe ramming under Zurich's Laubegg tram loop

Project: In the middle of Uetlibergstrasse in Zurich, dynamic pipe ramming was used as part of a new sewer construction project to connect a section to the sewer network in a closed construction method. Along the 18 m long route in the middle of the road and underneath tram tracks, several power blocks, an existing sewer and a gas pipeline had to be crossed.

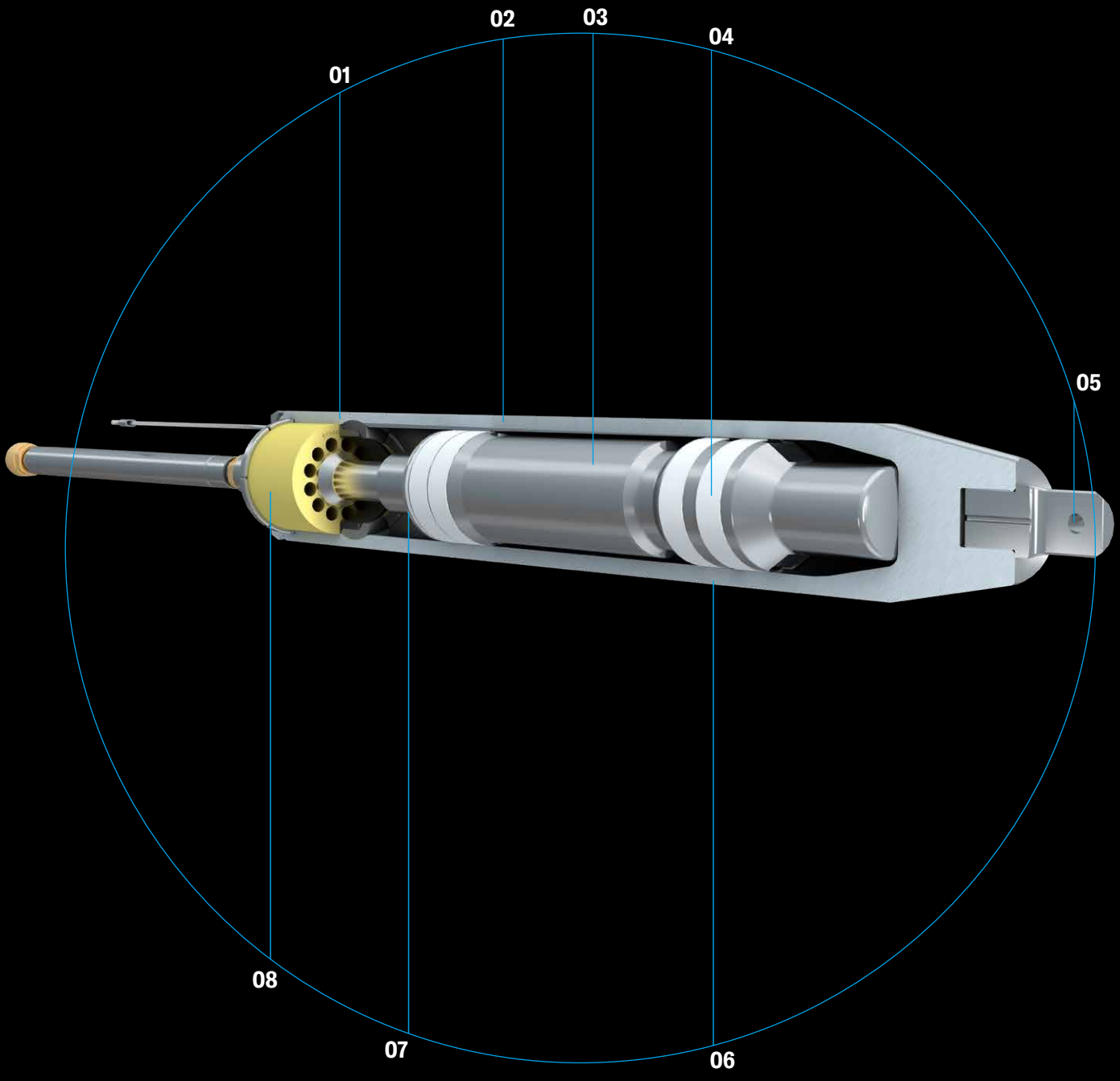
Client: Civil Engineering Office of the City of Zurich.

Execution: Zehnder Spezialbau AG

In use: GRUNDORAM Goliath

Duration: 1 1/2 weeks

GRUNDOCRACK
DYNAMIC PIPE BURSTING SYSTEMS
DYNAMIC RENOVATORS



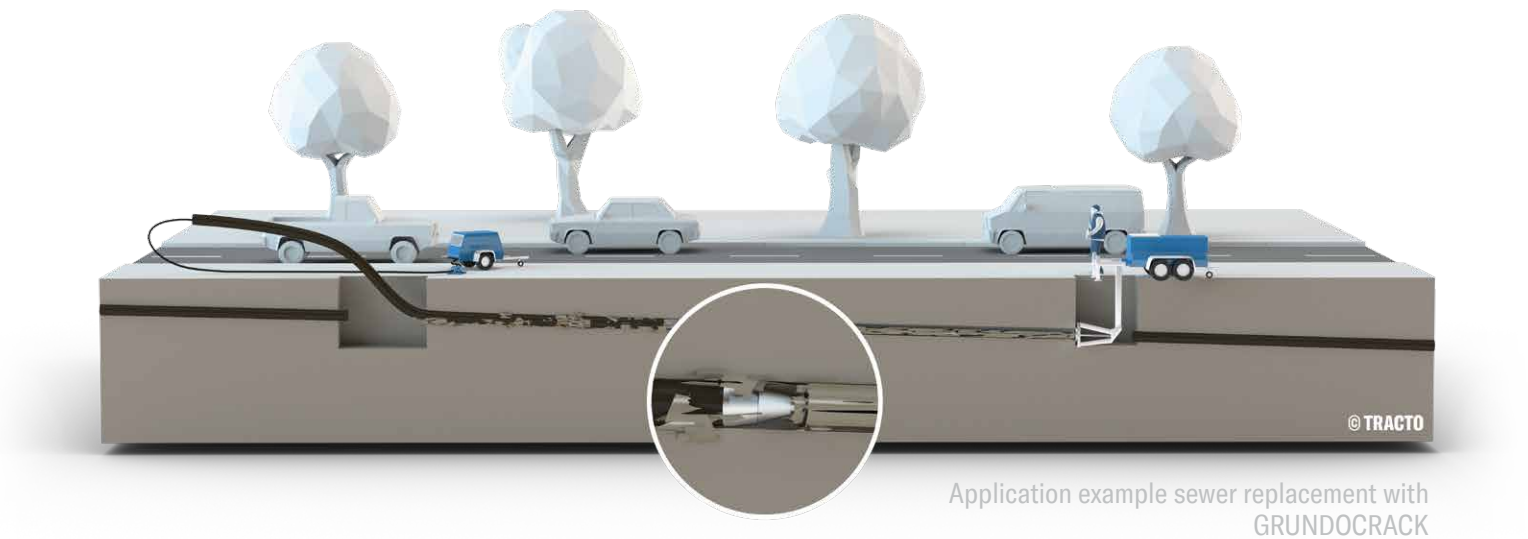
APPLICATIONS

01 Inside and outside chrome-plated, low-wear housing
02 Solid , one-piece casing without welding seams or screwed connection
03 Solid , tempered piston for high strength and durability
04 Piston seal rings prevent friction
05 Drawbar eye for rope connection for targeted guidance
06 Smooth machine body for recovery in new pipe where space is limited
07 Piston seal minimises air consumption and increases performance
08 Permanently elastic mounted control system protects material

GRUNDOCRACK DYNAMIC PIPE BURSTING SYSTEMS – GRUNDOCRACK machines are modified horizontal rammers powered by compressed air. They are equipped with a reverse gear for quick and ergonomic removal of the accessories and easy recovery of the machines even in confined spaces.

The GRUNDOCRACK machines are particularly suitable for the dynamic renewal of defective pipes made of brittle materials in the existing pipeline. Dynamic impact energy is used to break up the old pipe and push it 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 diameter are pulled in. A cable winch supports the pipe cracker and provides the pulling force to ensure safe guidance in the exsiting pipe path

In addition to pipe renewal using the dynamic bursting method, the GRUNDOCRACK can also be used for pipe rehabilitation using the calibre bursting or TIP method and, with the appropriate accessories, as a rammer for dynamic steel pipe installation.



Application example sewer replacement with GRUNDOCRACK

FACTS

METHOD

STATIC

DYNAMIC

DIAMETER NEW PIPE

225 – 560 MM*

*depending on machine type

MAIN APPLICATIONS

RENEWAL OF PRESSURE PIPES

RENEWAL OF GRAVITY PIPES

SPECIAL APPLICATIONS

RENOVATION OF PRESSURE PIPES*

RENOVATION OF PRESSURE PIPES*

* Gas, sewage

IN FIVE SENTENCES

1

Proven combination

The dynamic bursting method, i.e. the combination of dynamic pile driving energy and the pulling force of a winch, is the longest proven method for underground pipe renewal. The simple but efficient procedure was developed more than forty years ago and is still used worldwide today.

2

Purposeful guidance

With a pulling winch, the guidance of the GRUNDOCRACK is statically supported by means of a steel cable in the old pipe. The winch is designed in such a way that the tension of the pulling rope is kept constant even in the case of increased resistance, e.g. due to pipe sleeves.

3

Brittle materials

Just like the static method, dynamic bursting means a completely new pipe with a new service life of 80 - 100 years in the existing route. The GRUNDOCRACK is particularly suitable for the renewal of old pipes made of brittle materials such as concrete, stoneware, fibre cement (incl. asbestos cement), grey cast iron.

4

Flexible use

The GRUNDOCRACK can be used to pull in new long or short pipes. Work can be carried out from pit to manhole or from pit to pit - with the mini machines even from manhole to manhole. The reverse gear makes it easy to detach the cracker from the expander when space is limited.

5

Strong piece

The heavy-duty, solid casing of the GRUNDOCRACK is made in one piece from a forged piece, has neither welded seams nor screwed connections and is chrome-plated inside and out. The precise deep-hole drilling ensures direct force transmission from the piston to the head.

PERFORMANCE DATA

TYPE	PCG130	PCG180	PCG200	PCG260	PCG350
Machine- Ø (mm)	130	180	208	280	380
Length (mm)	1,460	1,700	2,100	2,290	2,730
Weight (kg)	95	230	395	615	1,180
Expander- Ø (mm)	280	392	450	560	630
New pipe-outer- Ø (mm)	225	315	355	450	560
No. of strokes (min^{-1})	320	280	290	310	220
Air consumption (m^3/min)	2.7	4.5	6.5	12	20
With cutter head	x	x			
With pulling eye		x	x	x	x

All data without guarantee

GRUNDOCRACK in detail. More at

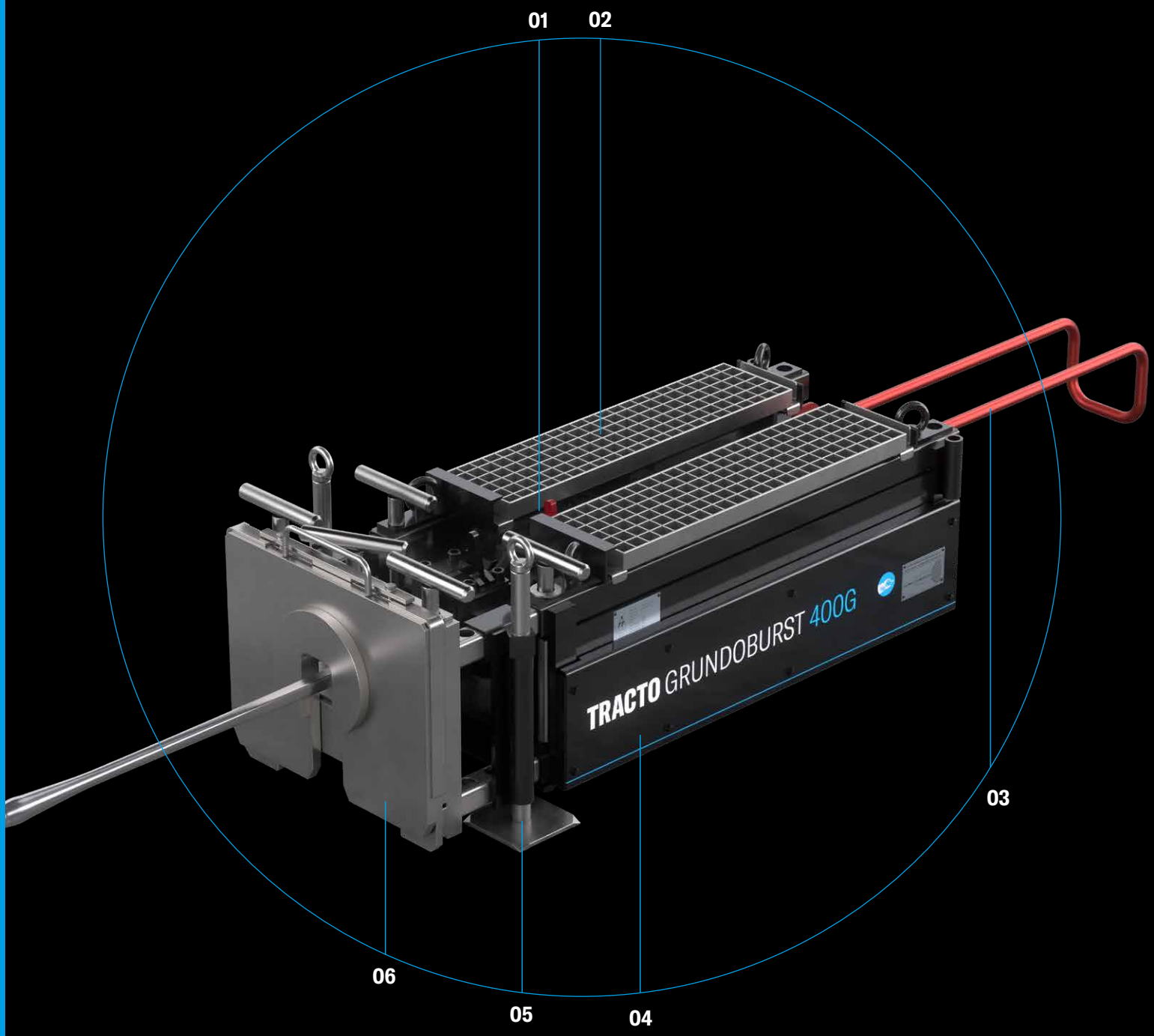
TRACTO.COM/
GRUNDOCRACK

BREAKING RECORDS TWICE

Dynamic pipe renewal over 180 m in one go

Project:	In Wellington, the capital of New Zealand, a section of a 152 mm vitrified clay sewer in Adelaide Road had to be renewed. Under the busy residential and commercial street, the new 160 mm OD PE-HD pipe was pulled in one piece using the dynamic bursting method with only one intermediate pit - in a record-breaking 3 hours.
Client:	Wellington Water
Execution:	GP Friel Ltd
In use:	GRUNDOCRACK PCG 130
Duration:	3 hours for pulling in the pipe

GRUNDOBURST
STATIC PIPE BURSTING SYSTEMS
THE RENOVATORS



APPLICATIONS

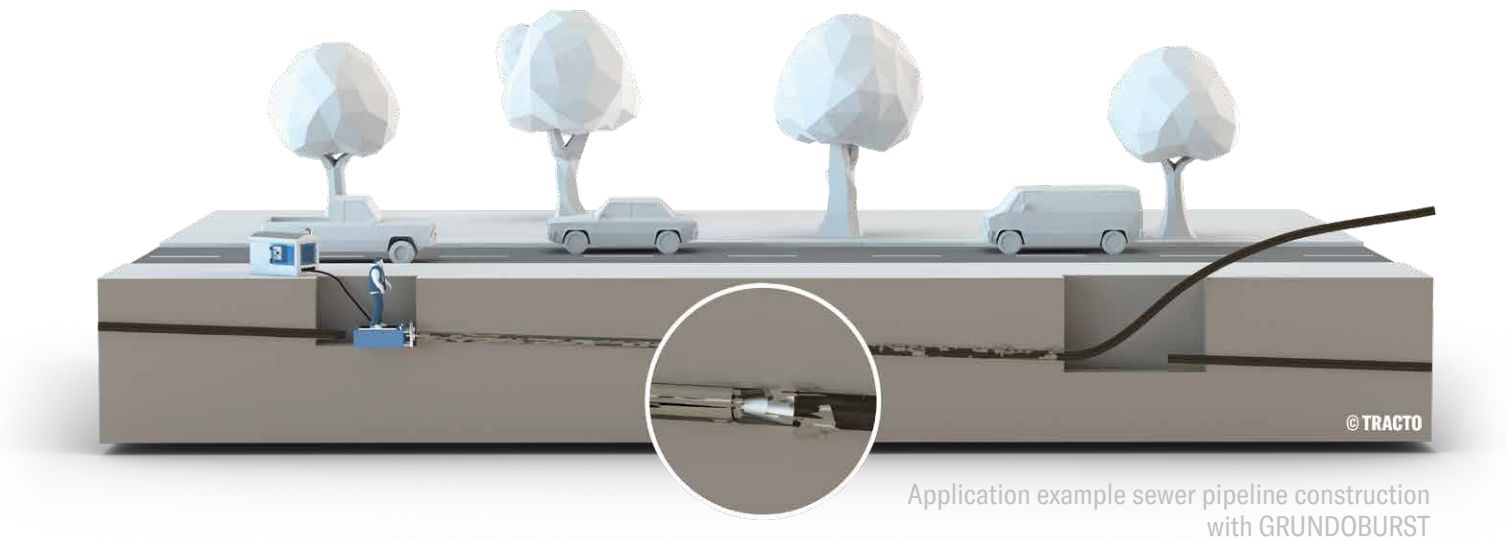
01 Two latch fingers prevent the rods from slipping back
02 Steps for safe standing
03 Safety bracket in the burst rod exit area
04 Very simple, robust frame design
05 Height adjustment via threaded rods
06 Integrated telescopic extension frame

GRUNDOBURST 800G

GRUNDOBURST STATIC PIPE BURSTING SYSTEMS - The bursting method is a globally established method for the trenchless renewal of damaged pipelines. In this process, the old pipe is replaced with a new pipe of the same or larger diameter in the existing route using the hydraulically driven GRUNDOBURST systems. With the static bursting method, work can be carried out horizontally in both directions from a machine starting pit.

The powerful and robust GRUNDOBURST pulling rigs are perfectly suited for the renewal of pipes up to Ø 1,200 mm with circular or egg-shaped profiles. To do this, the carriage first pushes the bursting rod through the old pipe. After the cutting tool and the new pipe have been connected, the retraction begins. The specially developed QuickLock burst rod is not screwed on, but is quickly and effectively latched in place, providing thrust and tensile strength. This simplifies handling on the construction site considerably and even makes it possible to negotiate slight bends.

In addition to complete replacement, the versatile GRUNDOBURST systems can be used for partial repair and renovation of pipes using specific accessories.



Application example sewer pipeline construction with GRUNDOBURST

FACTS

METHOD

STATIC

DYNAMIC

PIPE DIAMETER

50 – 1,200 MM Ø

MAIN AREAS OF APPLICATION

- RENEWAL OF PRESSURE PIPES
- RENEWAL OF GRAVITY LINES*

SPECIAL APPLICATIONS

- PIPE REHABILITATION*
- DYNAMIC STEEL PIPE RAMMING*

* Gas, sewage, water

IN FIVE SENTENCES

1

Sustainable renewal

Static pipe bursting means a completely new pipe with a service life of 80 - 100 years. With GRUNDOBURST, damaged sewage and supply pipes can be renewed in the existing bore path for almost all types of damage using almost all materials. No subsequent costs due to soil settlement, groundwater interference and road damage after pipe bursting.

2

Powerful optimisers

Five powerful models with pulling forces from 400 to 2,500 kN allow pipe renewal up to Ø 1,200 mm from a shaft or pit. By inserting new pipes with smaller or larger diameters, even the pipeline capacity can be adjusted in the course of the renewal.

3

Perfect connection

The QuickLock bursting rods, made from one piece, are really tough, insensitive to dirt and can be used much longer than screwed rods. Thanks to the quick-lock coupling, screwing is no longer necessary and removal/insertion is faster. The connection is absolutely tension- and shear-resistant and even curve-compatible.

4

Flexible all-rounders

5 in 1: In addition to the classic bursting method (new pipe Ø equal or greater), the GRUNDOBURST systems can also be used for the renovation of pipes. Matching accessories allow long and short pipe relining, calibre bursting, Tight-in-pipe or the reduction method.

5

Controlled forces

Because media and product pipes must not be overstressed when being drawn in, the acting tensile forces must be checked and recorded. This is done safely and reliably by the GRUNDOLOG tensile force measuring devices for the performance classes 150 kN, 400 kN, 1,250 kN and 2,500 kN.

PERFORMANCE DATA

TYPE	400G	400S	800G
Dimensions of rig L x W x H (mm)	1,420 x 560 x 520	600 x 490 x 340	1,700 x 720 x 670
Weight of rig (kg)	560	200	1,450
Pulling force at 250 bar (kN)	400	400	769
Old pipe Ø (mm)	ND 50 - ND 250	ND 50 - ND 250	ND 80 - ND 400
New pipe Ø* (mm)	up to OD 280	up to OD 280	up to OD 400
For pipe materials	PE, PVC, stoneware, grey cast iron, GFRP, steel	PE, PVC, stoneware, grey cast iron, GFRP, steel	PE, PVC, stoneware, grey cast iron, GFRP, steel
Bursting rod-Ø (mm)	54	54	75
Bursting rod Weight (kg)	7.5	5	13

TYPE	1250G	1900G	2500G
Dimensions of rig L x B x H (mm)	2,300 x 1,100 x 875	2,850 x 1,150 x 1,000	2,950 x 1,600 x 1,500
Weight of rig (kg)	3,120	3,320	4,100
Pulling force at 250 bar (kN)	1,272	1,900	2,550
Old pipe Ø (mm)	ND 150 - ND 600	ND 250 - ND 800	ND 300 - ND 1,200
New pipe Ø* (mm)	up to OD 630	up to OD 900	up to OD 1,200
For pipe materials	PE, PVC, stoneware, grey cast iron, GFRP, steel	PE, PVC, stoneware, grey cast iron, GFRP, steel	PE, PVC, stoneware, grey cast iron, GFRP, steel
Bursting rod-Ø (mm)	100	120	140
Bursting rod Weight (kg)	85	165	210

*dependent on soil | All data without guarantee

GRUNDOBURST in detail. More at

TRACTO.COM/
GRUNDOBURST

LARGE DIMENSIONS, STEEP HILL

Renewal of two water pipelines with capacity upsizing in the Swiss mountains

Project: Half of the drinking water for the inhabitants of Zug consists of pure groundwater, which is extracted from the source areas of the rugged Loren Valley. When two water pipes to one of the so-called 'well pits' had to be renewed, the GRUNDOBURST proved that the bursting process works safely even under extreme conditions. Despite the more than adverse conditions in the steep, rocky terrain, the two ND 100 and ND 200 pipelines could be renewed underground gently, quickly and cost-efficiently.

Client: WWZ Energie AG

Design: TPS Trenchless Piping Systems AG

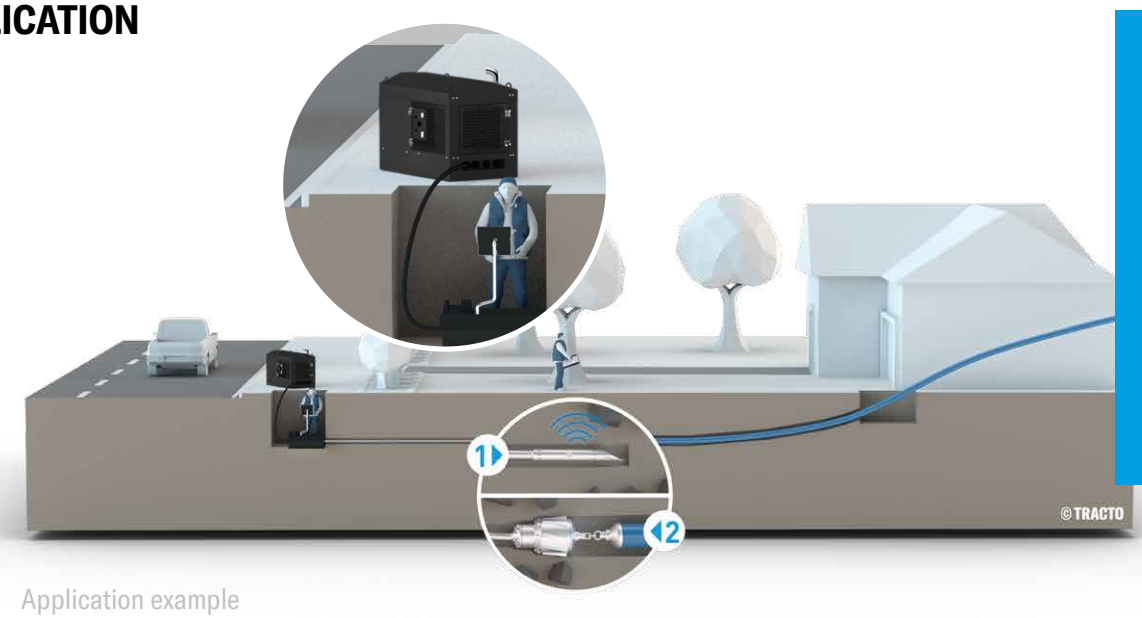
In use: GRUNDOBURST 800G

Duration: 1.5 days

HYDRAULIC UNITS
FULL POWER SUPPLY

Efficient and reliable drive technology is essential for the maximum energy efficiency of our hydraulically driven NODIG systems. Our hydraulic units are designed to meet these power requirement and provide the required external hydraulic energy without any loss of power. Accurate pre-settings for the GRUNDODRILL and GRUNDOPIT mini drilling rigs, the GRUNDOBURST static pipe bursting systems and all TRACTO mixing units enable fast work.

APPLICATION



Application example
water house connection

Hydraulic units in detail. More at

TRACTO.COM/HP

VARIATIONS





TYPE	HP19	HP28	HP37	HP55	HP150
Drive capacity (kW)	19	28	37	55	149
Maximum oil flow rate (l/min)	90	120	120	200	425
GRUNDOPIT	PS40	PS40	PS60	-	-
GRUNDOBURST	400S, 400G	400S, 400G	400S, 400G, 800G	440OS, 400G, 800G, 1250G, 1900G	2500G

MIXING SYSTEMS
THE OPTIMUM DRILLING FLUID

A first-class drilling fluid technology for mixing and delivering the drilling fluid in HDD is an elementary part of successful drilling operations. TRACTO's mixing systems form a perfect unit with the drill rig and the drilling tools for efficient work - even in difficult soils. Powerful pumps and large tanks ensure a high flow rate for the optimal clearing of the bore channel with a drilling fluid perfectly adapted to the specific soil conditions. The newly developed MRU250HE mixing and recycling unit is perfectly tailored to the requirements of modern HDD drilling technology.

TRUCK SET-UP

Set-up example with MA07

Mixing units in detail. More at

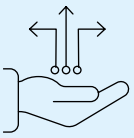
TRACTO.COM/MA

VARIATIONS

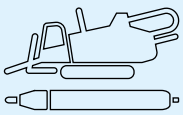
TYPE	RINSING UNIT FU1	MIXING UNIT MA09	MIXING UNIT MA010-D	MIXING UNIT MA07 / MA07D / MA07E
Tank volume mixing tank (l)	300	1,100	4,000	2 x 4,000
Maximum flow rate High pressure pump (l/min)	14.6	40	1,300	1,500
GRUNDOPIT	PS40	PS40, PS60	-	-
GRUNDODRILL	-	-	15XP / 15XPT, 18N / 18ACS, 28Nplus, JCS130 / ACS130, ACS300	15XP / 15XPT, 18N / 18ACS, 28Nplus, JCS130 / ACS130, ACS300

FULL SERVICE FOR TRENCHLESS TECHNOLOGY

Whether its before, during or after the purchase, whether in person or online – we are always at your side with advice and support. Our wide-ranged service is specially tailored to the requirements of trenchless pipe installations, so you can concentrate fully on your core business.



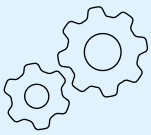
Digital Solutions
Our website offers you the whole world of trenchless technology in digital form. Find out more about our company, our products and their applications. Discover the digital tools for the HDD drilling technology and many other intelligent solutions. Always stay up to date by using the links to our social media channels. Or you can order machines, accessories and spare parts in our eSHOP – easy and conveniently via PC, smartphone or tablet.



Nodig Product Specialists
You can truly rely on our product specialists for all technical questions regarding the function and application of our steerable and non-steerable NODIG-systems. With comprehensive knowledge in each of their special fields, you can be sure they will find the best solution for your trenchless projects and advise you competently on setting up your jobsite.

Financing
We offer attractive financing solutions for new and used machines to our customers and sales partners through the TRACTO-TECHNIK Finance GmbH. Be it financing, hire purchase, various types of leasing or insurance: we provide extensive expert advice, individually and personally, in order to find the tailored solution for you. Discretion goes without saying.

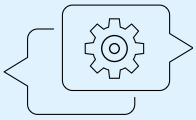
Training
Qualified training enables you to apply trenchless technology even more effectively and profitably. Our wide range of training courses for machine operators, construction professionals as well as planners and clients cover all aspects of NODIG technology, including special topics. Certified trainers also instruct you, in theory and practice according to your individual requirements, either at one of our numerous company locations, or directly on your own premises or online, independent of time and place.



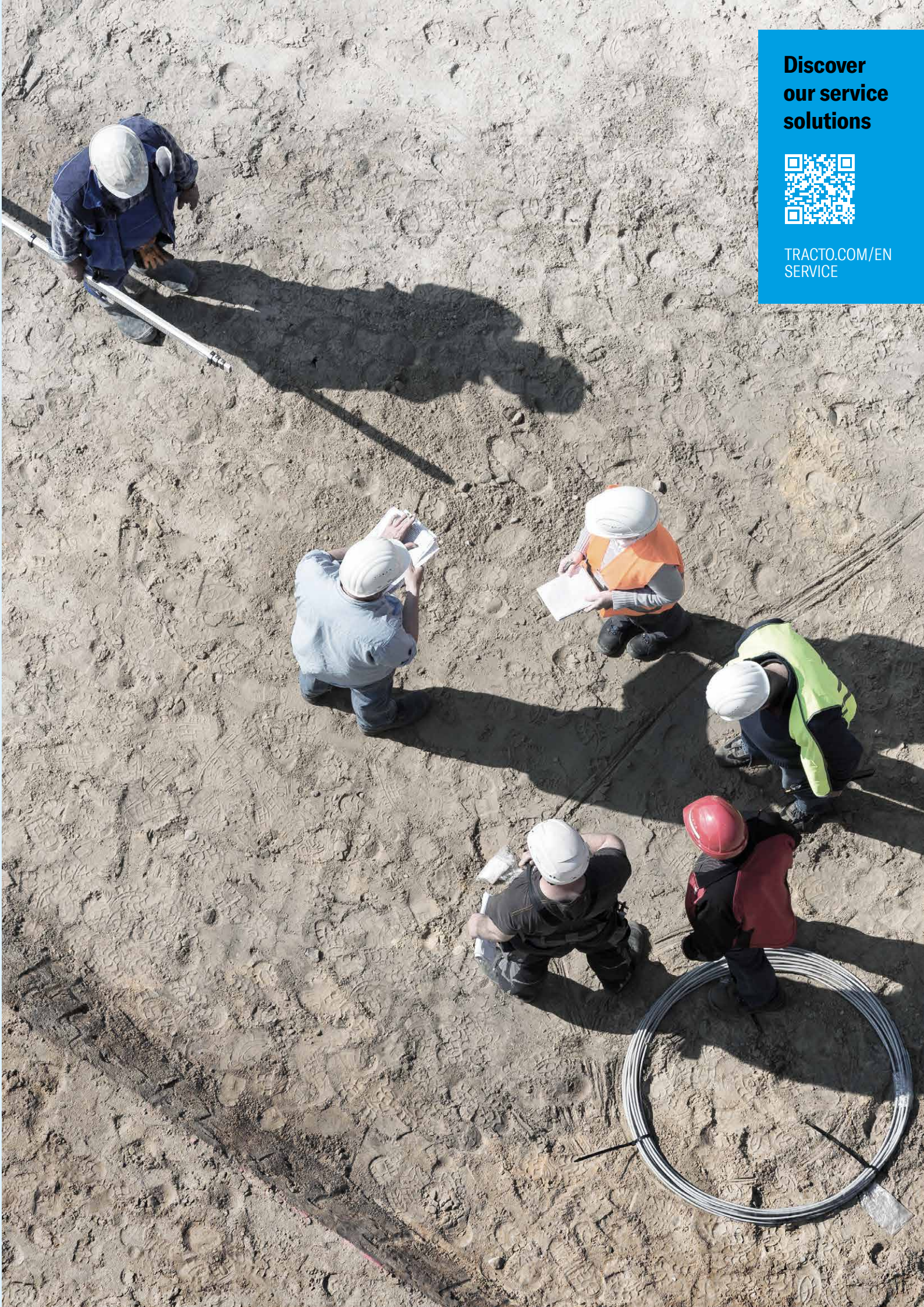
Specialised Civil Engineering Service (Application Technology)
The specialised civil engineering service for application technology provides support for all your trenchless construction sites. Our experts demonstrate the steerable and non-steerable NODIG technology live in practical use, show your drilling teams how to use it or actively assist with special projects.

Geoservice
Precise knowledge of the soil is the key to successful trenchless projects. Our Geoservice team provides you with this professional knowledge. Our expertise puts you in a position to master every type of soil. Based on geoscientific maps and existing construction files, we supply information on the soil, which will help you with calculations or supplements.

Used Equipment
If you want to sell a used machine at an attractive price or are looking for the right equipment for your tasks, our full service for used NODIG machines will take the workload off your hands – from appraisal and price determination to professional repair and certification, through to achieving the best price for you via our used machine website with access to one of the world's largest construction machinery platforms.



After Sales
Via our worldwide service network we are always there for you, even after the purchase. A total of five TRACTO plants and seven customer centres in Germany, as well as our worldwide sister companies and sales partners guarantee fast supply of spare parts and immediate availability. Our competent service staff offer fast assistance, to ensure you don't lose any time.



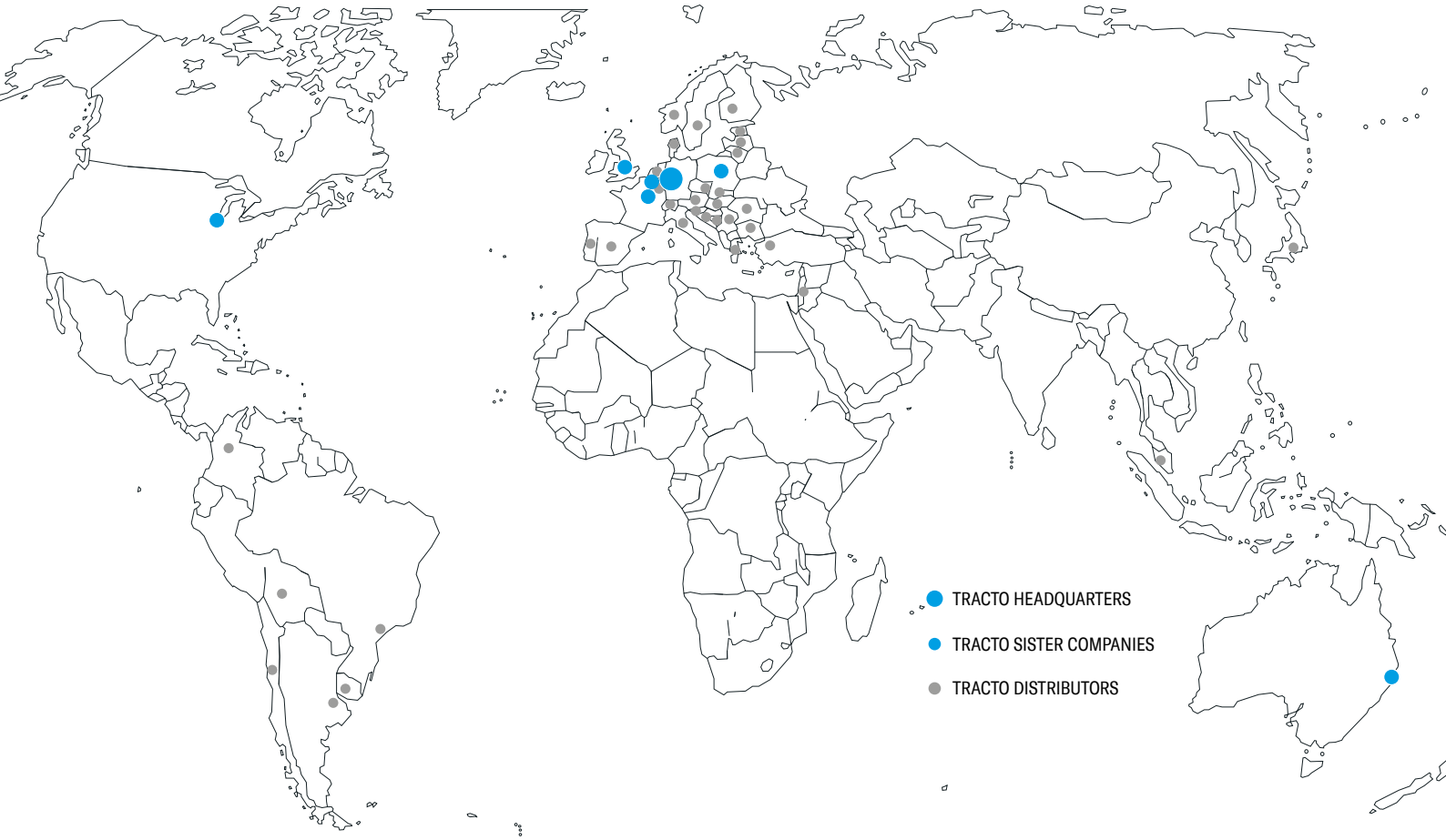
Discover our service solutions

TRACTO.COM/EN
SERVICE

TRACTO-TECHNIK GMBH & CO. KG HEADQUARTERS

PAUL-SCHMIDT-STRASSE 2
57368 LENNESTADT, GERMANY
T +49 2723 808-0
F +49 2723 808-180
INFO@TRACTO.COM
TRACTO.COM/DE

TRACTO.COM



BENELUX
TRACTO-TECHNIK BENELUX
MOESTOEMAATHEIDE 16A
2260 WESTERLO
T +32 498 66 60 74
BENELUX@TRACTO.COM
TRACTO.COM/BE

UNITED KINGDOM
TRACTO-TECHNIK UK LTD
10 WINDSOR ROAD
BEDFORD MK 42 9SU
T +44 1234 342566
F +44 1234 352184
INFO@TRACTO-TECHNIK.CO.UK
TRACTO.COM/UK

FRANCE
TRACTO-TECHNIK FRANCE S.A.R.L.
1/3 RUE DE LA PRAIRIE
F-77700 BAILLY ROMAINVILLIERS
T +33 1 60 42 49 40
F +33 1 60 42 49 43
FR@TRACTO.COM
TRACTO.COM/FR

USA
TT TECHNOLOGIES INC.
2020 EAST NEW YORK STREET
AURORA, IL. 60502
T +1 630 851 8200
F +1 630 851 8299
INFO@TTTECHNOLOGIES.COM
TTTECHNOLOGIES.COM

AUSTRALIA
TRACTO-TECHNIK AUSTRALIA PTY LTD.
10 ALICIAJAY CIRCUIT
LUSCOMBE, QLD 4207
T +61 7 3420 5455
AU@TRACTO.COM
TRACTO.COM/AU

TRACTO
ADVANCED TRENCHLESS TECHNOLOGY

TRACTO PARTNER:

ALG11ENV06 12/2025