



GRUNDOPIT

SMALL POWERHOUSES

FLUID-ASSISTED MINI DRILL RIGS



trenchless technology – simple & easy

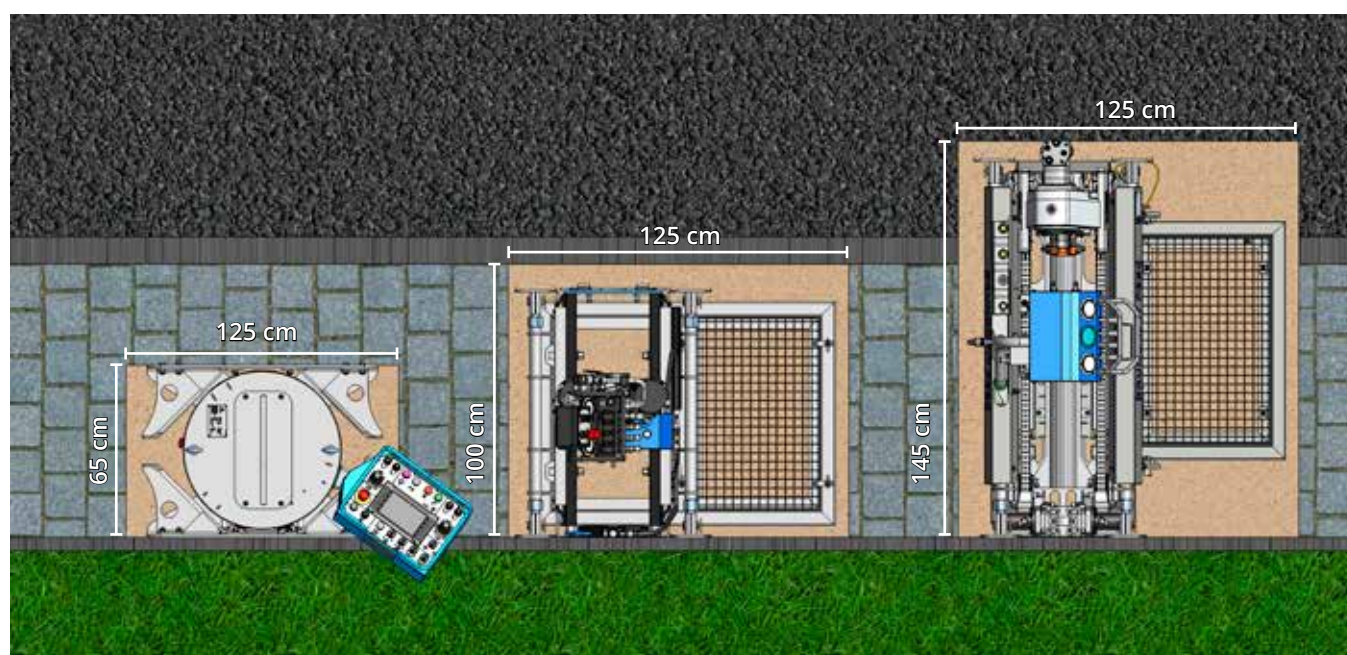


STEERABLE, COMPACT & VERSATILE

THE GRUNDOPIT FLUID-ASSISTED MINI BORE RIGS

GRUNDOPIT Mini fluid-assisted HDD rigs are used wherever the installation of lines up to 100 m long or the manufacture of house connections demand the steerability of the bore head due to the required bore path. This is the case with bores within existing infrastructures, in restricted spaces, demanding terrains such as slopes and/or heavy soils. House connection service lines can also be installed with the GRUNDOPIT HDD rigs in a steerable manner up to a small pit in front of the building, directly into the building, or the basement and in the opposite direction. This way you can close the gap between non-steerable soil displacement hammers and steerable midi-sized HDD rigs.

The versatile models of the GRUNDOPIT series are compact, easy-to-handle mini bore rigs for quickly and economically establishing gas, water, electricity, fibre optic and wastewater house connections as well as parallel installations up to 100 m length. Depending on the soil, a water, water-polymer or Bentonite drilling fluid is used. Depending on the type of bore, pipe diameter, soil type, bore length and degree of difficulty, you can choose between units for pit, shaft or keyhole start.



GRUNDOPIT KS50

GRUNDOPIT PS40

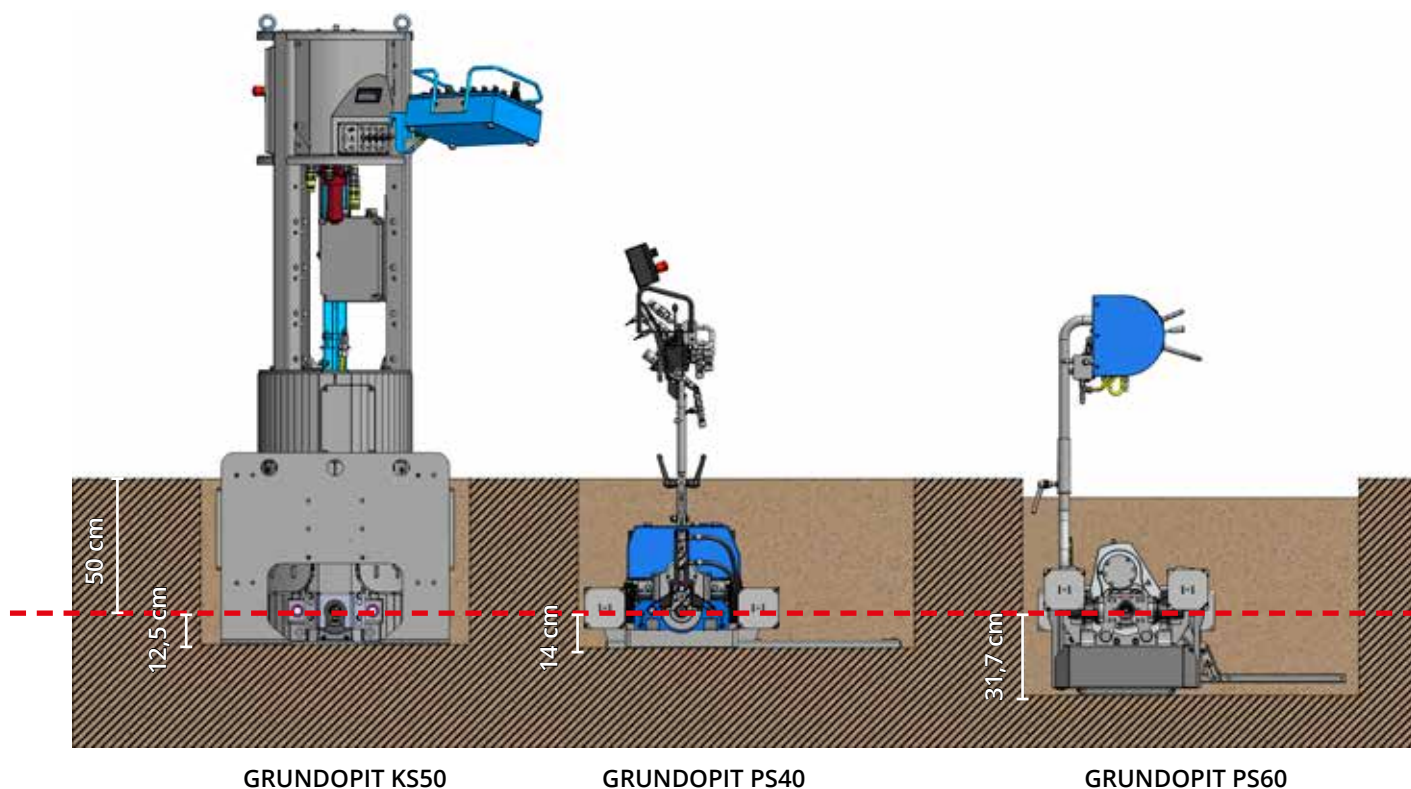
GRUNDOPIT PS60

FITS IN EVEN THE SMALLEST PIT

MINIMAL SIZE, MAXIMUM POWER

The compact dimensions of the GRUNDOPIT Mini HDD rigs are beneficial in a number of ways. Thanks to the small dimensions of the drill rigs, only small quick-to-produce excavation pits are required which cause only a minimum of excavation. This allows the machines to be used in restricted spaces and densely populated areas, especially since a truck-mounted crane or mini-excavator is sufficient for handling. Due to the small distance between bore axis and pit floor, all

GRUNDOPIT models can be used for flat bores simply crossing over existing pipeline networks. At the same time, the bore axes are deep enough to keep the required cover and the given installation depth – both when starting from a rectangular pit and a circular pit.



GRUNDOPIT PS40

Very compact pit machine for establishing near-surfacem-service connections in existing infrastructures, especially out of the pavement

**GRUNDOPIT PS60**

Powerful pit machine for house connections and parallel installations, especially in difficult terrains and complex soils

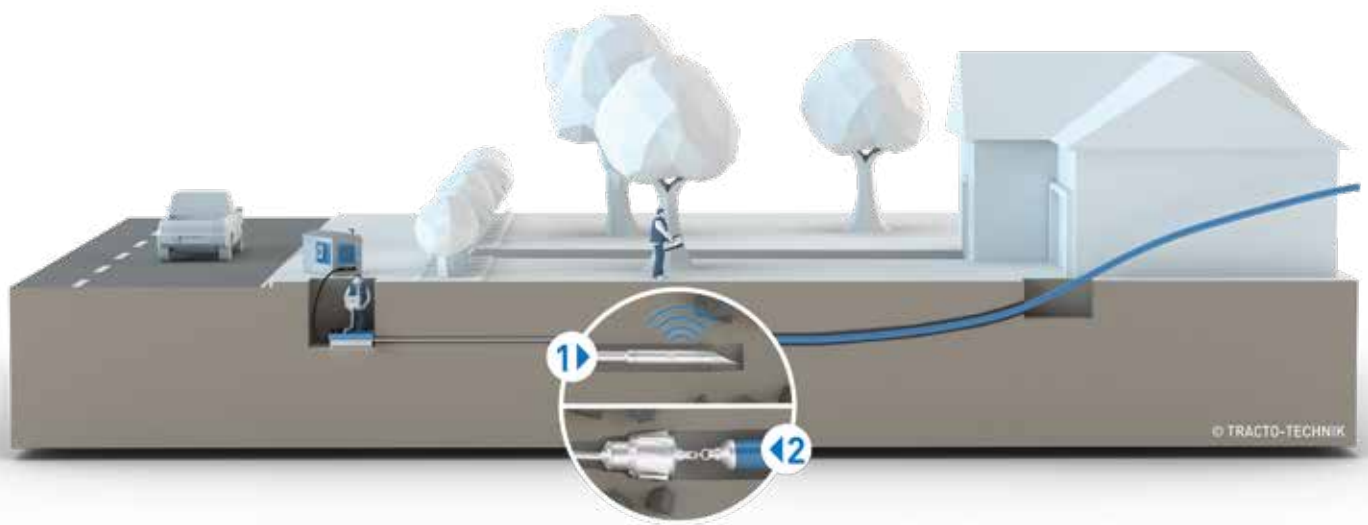
GRUNDOPIT KS50

Innovative bore rig for the minimally invasive installation of house connections from the smallest possible, round key-hole pit



SAFE METHOD, VERSATILE APPLICATIONS

HORIZONTAL FLUID-ASSISTED DRILLING WITH GRUNDOPIT PS40 AND PS60



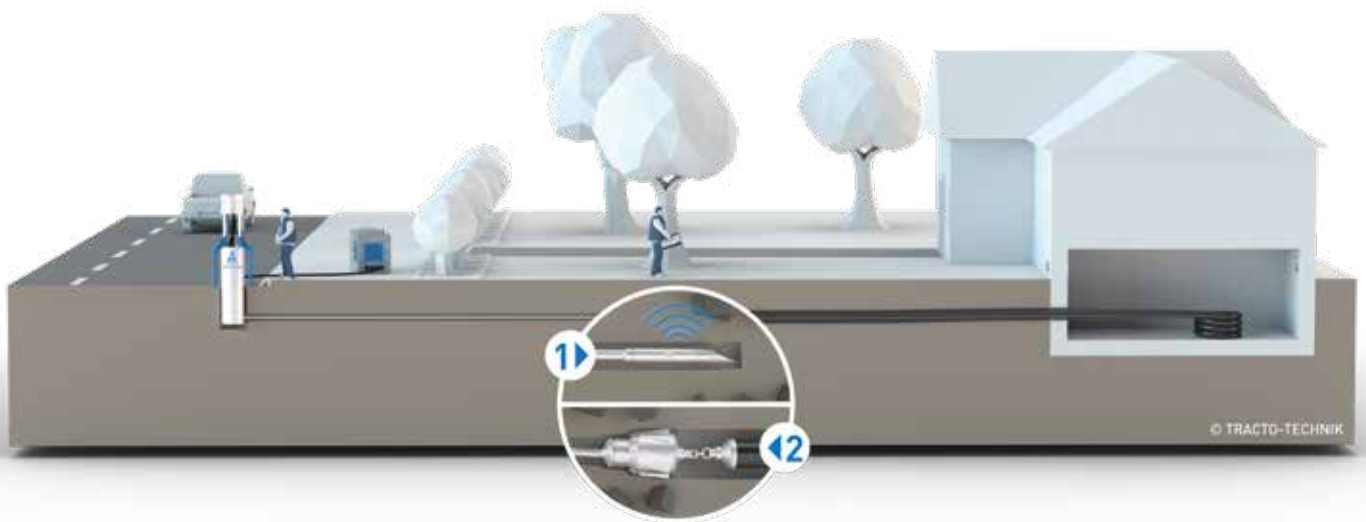
APPLICATION

All GRUNDOPIT rigs are designed for a wide range of applications, a long service life, minimal wear, minimal downtime and low consumption of resources and minimal use of operating equipment and fuels – making them particularly flexible and economic – from the first day onwards.

- **UNDERCROSSINGS**
Beneath roads, railway tracks, buildings, gardens and other valuable surfaces.
- **PROPERTY SERVICE CONNECTIONS**
For gas, water, sewage, electricity, broadband (FTTH) or directly from the property.
- **DRAINAGE BORES**
Installation of drainage pipes to discharge water.
- **SPECIAL APPLICATION FOR USE IN ROCK**
with pneumatic hammer bore head can be used for non-steerable rock drilling

STARTS EARNING FROM THE FIRST METRE THE HORIZONTAL WATER DRILLING PROCESS

THE HORIZONTAL WATER DRILLING PROCESS WITH GRUNDOPIT KS50



APPLICATION

The keyhole serves as a starting pit for the GRUNDOPIT KS50. Following completion of the underground routing work, the main line is connected from the surface, the keyhole is filled and the asphalt core is bonded in again with a perfect fit. The procedure is suitable for the following applications

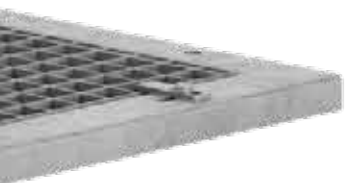
- **PROPERTY HOUSE CONNECTIONS**
For gas, water, power and data lines
- **UNDERCROSSINGS**
Directional bores beneath roads, railway tracks and buildings
- **LONGITUDINAL BORES**
Besides undercrossings, linear bores parallel to roads, rivers/lakes and buildings are standard applications.



SPEEDY HIGH-FLYER GRUNDOPIT PS40

The GRUNDOPIT PS40 was specially developed for the quick near-surface production of house connections. The extremely compact Mini-HDD rig is suitable for particularly small, only 1 metre wide pits which fit into the pavement. That is why the GRUNDOPIT PS40 is ideally suitable for FTTH connections directly from out of the pavement under which the public fibre optics infrastructure usually runs. Due to the low distance between the bore axis and the bottom of the starting pit, the bores can be started directly above the existing underground network from out of a flat starting pit.

House connections for water or electricity can also be installed easily with the GRUNDOPIT PS40 within the existing infrastructure up to or into the building. A core drill for drilling through manhole and basement walls allows direct installation here without a head hole. Thrust and pulling forces up to 4t enable the installation of pipes up to Ø 100 mm over max. 50 m length, even through challenging soils.



HOME-FRIENDLY SMALL, FAST, FLEXIBLE

CONTROL PANEL



Well laid-out, swivelling control panel for comfortable handling and control of the bore rig from any position.

ROTARY DRIVE WITH QUICK ROD CONNECTOR



Simple and quick connection of the rod to the rotational drive, without screwed fittings enable immediate paddle function.

UNFOLDING CLAMP

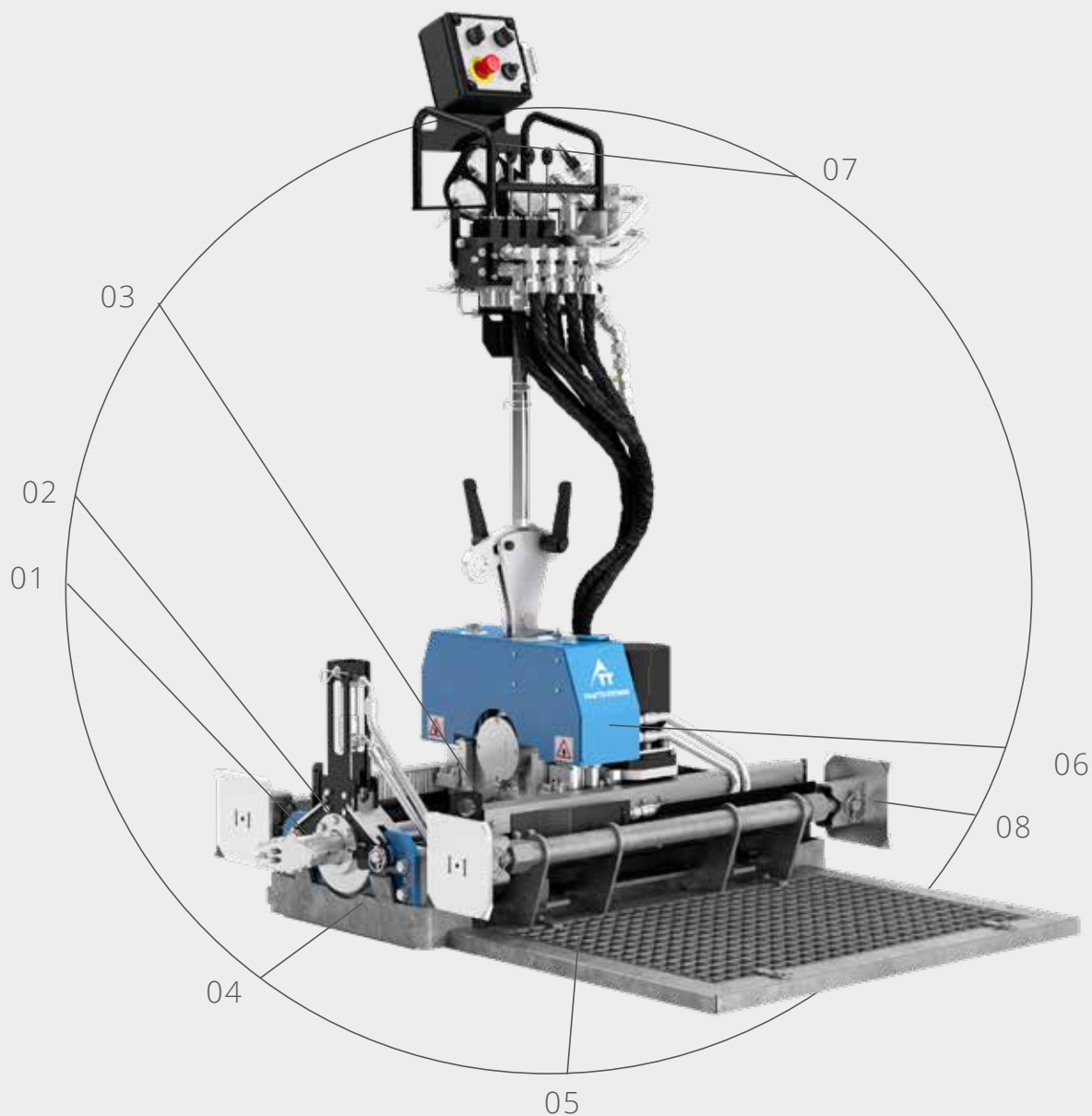


Large backreamers up to max. OD 150 mm can be pulled directly into the rig – no extension frame required.

HYDRAULIC PIT-START FRAME

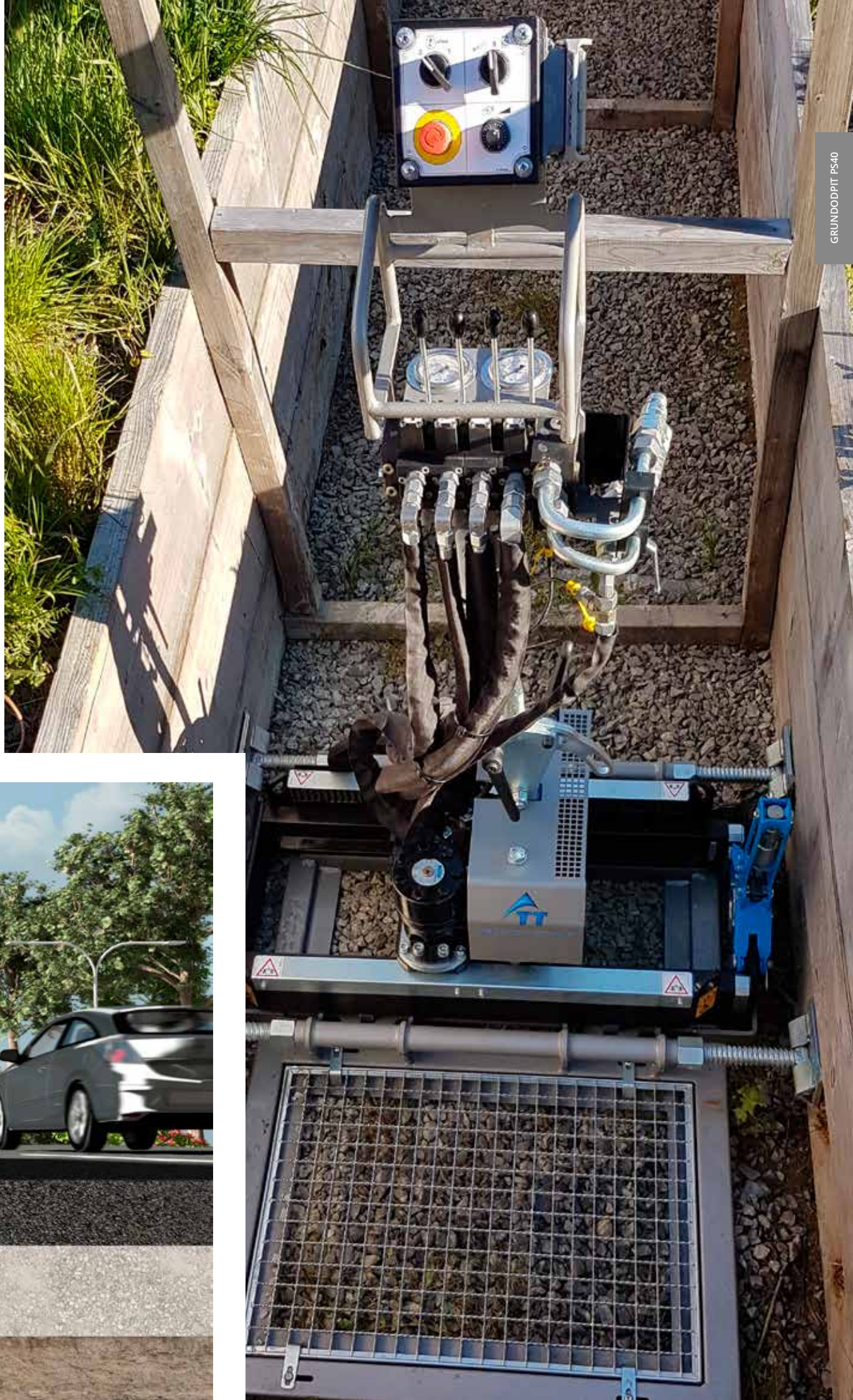


For short set-up times, ergonomic work and high stability



- 01 **Drill rod effective length 500 mm**
with a rig length of only 1.174 mm – allows quick and productive work even in extremely tight working spaces
- 02 **Hydraulic Clamping Device**
safer, comfortable, quick drill rod exchange
- 03 **Thrust via rack and pinion drive**
rigid construction, low maintenance and wear
- 04 **Small distance between bore axis and bottom edge of machine**
Start from very flat pits, directly above the available infrastructure
- 05 **Working platform**
with safe and clean stand, earthing the machine operator
- 06 **Removable rotary drive with lifting unit**
especially compact construction and ergonomic drill rod handling
- 07 **Fold-out control panel**
compact transport position, quick set-up
- 08 **Optional: Mechanical or hydraulic tensioning inside the pit**
short-set-up times, ergonomic work and high stability



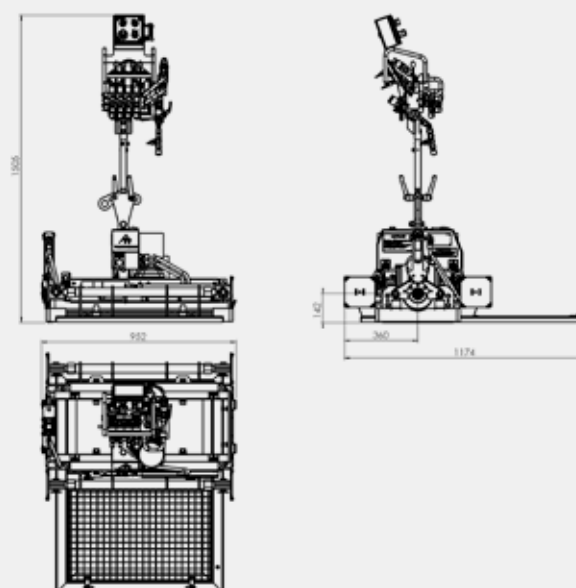




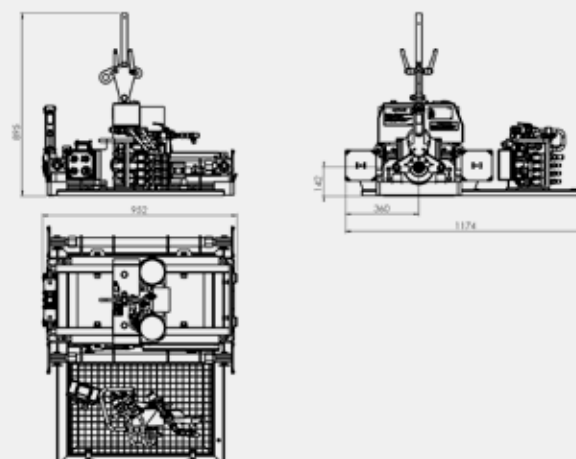
TECHNICAL SPECIFICATIONS

GRUNDOPIT PS40

WORKING POSITION



TRANSPORT POSITION



BASIC EQUIPMENT

- Very compact HDD pit bore rig for the quick manufacture of house connections (especially FTTH) and parallel installations up to 50 m
- Shallow launch from a small pit of only 1.00 x 1.25 m, which fits exactly in the footpath
- Holes to the building with core drill units
Small distance between bore axis and
- pit floor allows holes above the existing pipeline network
- Tensile and thrust force up to 40 kN at max. torque of 1,050 Nm

PERFORMANCE DATA	METRIC	IMPERIAL
Thrust and pullback force	40 kN	9 lbf
Installation speed (without load)	5 m/min	16 ft/min
Max. torque	1.000 Nm	738 lbf ft
Max. spindle speed	70 U/min	70 rpm
Bore rod Ø	45 mm	1.8 in
Effective rod length	500 mm	20 in
Rod weight	3,7 kg	8 lbs
Pilot hole Ø	65 mm	2,6 in
Min. drilling radius	26,5 m	87 ft
Length (transport position)	955 mm	37.6 in
Width (transport position)	1.175 mm	46.3 in
Height (transport position)	1.500 mm	59.1 in
Length (working position)	955 mm	37.6 in
Width (working position)	1.175 mm	46.3 in
Height (working position)	1.500 mm	59.1 in
Weight mech. tension	313 kg	690 lbs
Weight hydr. tension	335 kg	739 lbs
Upsizing Ø ≤	150 mm*	5.9 in*
Outer pipe Ø ≤	110 mm*	4.3 in*
Bore length ≤	40 m*	131 ft*
Required hydraulic fluid volume**	60 l/min	2 cfm
Required max. hydraulic fluid pressure	230 bar	3.336 psi

* depending on soil

** depending on the system min., here with FU01

Subject to change.



SMALL POWER PACK GRUNDOPIT PS60

Property house connections for gas, water, electricity, glass fibre cables and sewer pressure pipes can be installed quickly and economically with the fluid-assisted mini drill rig GRUNDOPIT PS60. The GRUNDOPIT PS60 can be launched from a small pit or, if applicable, directly from a utility room in the basement. If the bore is carried out directly into the building, the brickwork is sealed with a wall duct; so a head access hole in front of the building wall is not required. As well as the installation property house connections, crossings beneath traffic ways, rivers and brooks are also easily achieved.

Despite its small external dimensions, the GRUNDOPIT PS60 provides a powerful stroke, allowing for the application of rods with an effective length of 750 mm. With its high torque of 1,500 Nm, the maximum rotation number of 150 rpm and pushing and pulling forces of up to 6 t, working in difficult soil conditions is relatively trouble free.



QUICKSTARTER

COMPACT, POWERFUL, PROFITABLE

CONTROL PANEL



The well laid-out, swivelling control panel is made for comfortable handling and control over the drill rig from every position.

ROTARY DRIVE WITH QUICK ROD CONNECTOR

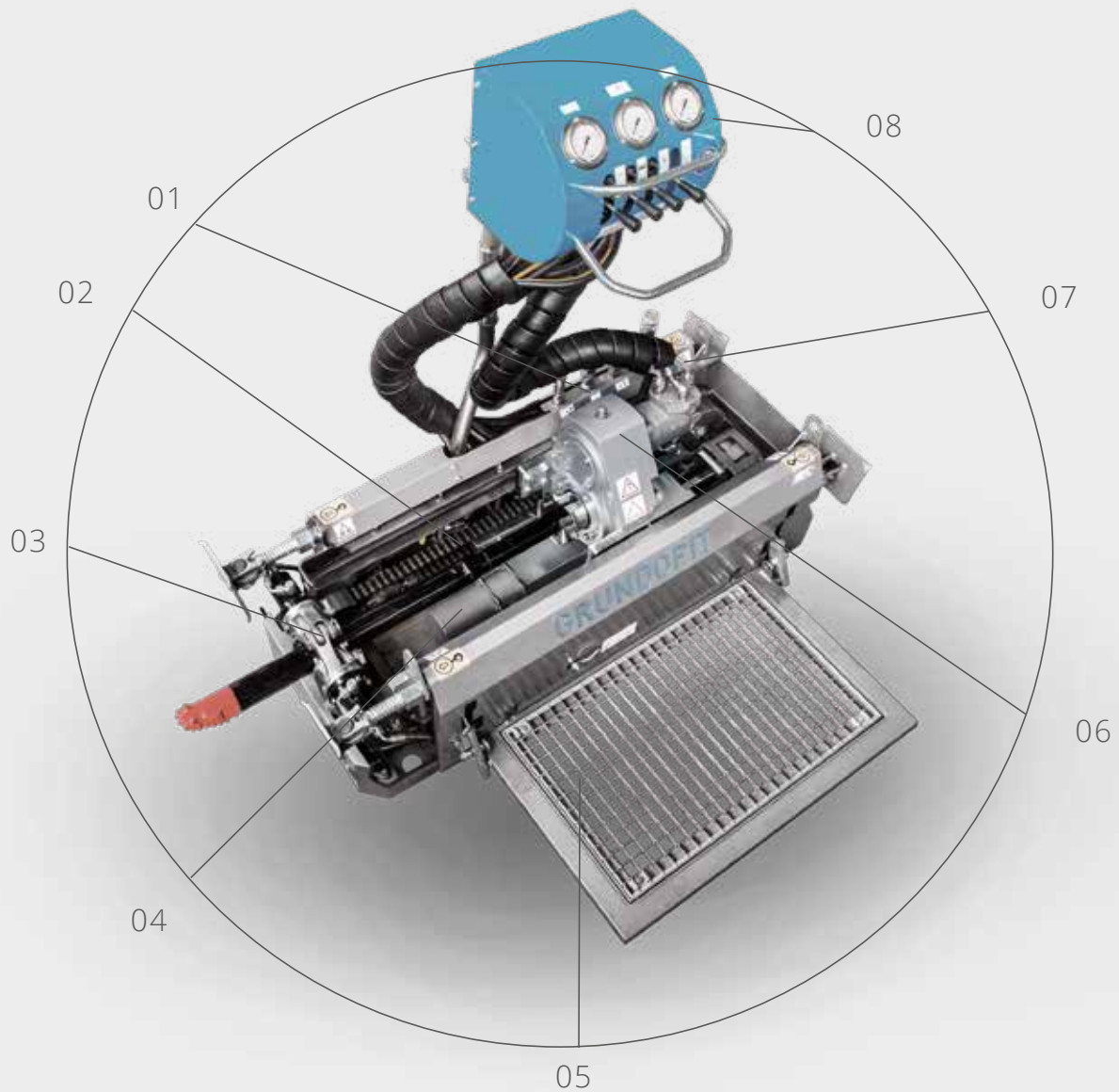


Simple and quick connection of the rod to the rotational drive without screwed fittings enables immediate paddle function.

UNFOLDING CLAMP



Pulling of large backreamers up to max. OD 200 mm directly into the rig is possible – no attachment frame required.



01 Coupling of the hydraulic lines directly to the rig
operator protection

02 Effective rod length 750 mm with only 1,370 mm rig length
for fast and productive work, even in extremely limited spaces

03 Hydraulic clamp
safe, comfortable, quick and easy rod exchange, clamping is possible in every position

04 Thrust via cylinder drive
full power is provided from the start

05 Fold-out footboard
for safe and clean standing

06 Two-step rotation
optimal adaptation to the soil conditions/upsizing diameters

07 Hydraulic tensioning in the work pit
short setup times, high self-support

08 Fold-out control panel
compact transport position, quick set-up



Underground



Dead on target



Pit start



Compact



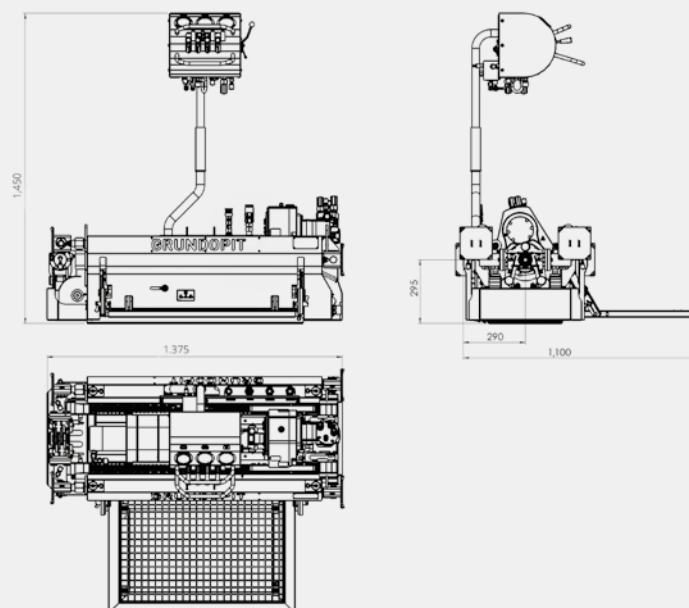




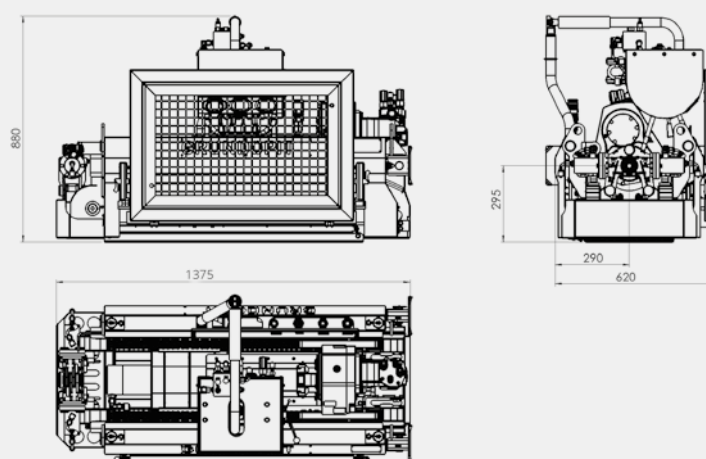
TECHNICAL SPECIFICATIONS

GRUNDOPIT PS60

WORKING POSITION



TRANSPORT POSITION



BASIC EQUIPMENT

- Two-stage rotation
- Hydraulic clamping
- Effective length of rods 750 mm with a rig length of only 1.370 mm
- Thrust by means of cylinder
- 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)
- Unfolding clamp

PERFORMANCE DATA	METRIC		IMPERIAL	
Thrust and pullback force	60	kN	13,489	lbf
Installation speed (without load)	5	m/min	16	ft/min
Max. torque	1.500	Nm	1,106	lbf ft
Max. spindle speed	150	rpm	150	rpm
HP Bentonite pump (not included)	40	l/min**	10.6	gpm**
Bore rod Ø	51	mm	1.89/1.50	in
Effective rod length	750	mm	30	in
Rod weight	6,2	kg	19.84	lbs
Pilot hole Ø	80	mm	3.15	in
Min. drilling radius	26,5	m	87	ft
Length (transport position)	1.385	mm	54.5	in
Width (transport position)	620	mm	24.4	in
Height (transport position)	880	mm	34.6	in
Length (working position)	1.375	mm	54.1	in
Width (working position)	1.100	mm	43.3	in
Height (working position)	1.450	mm	57.1	in
Max. weight	490	kg	1,080	lbs
Upsizing Ø ≤	250	mm*	9.84	in*
Outer pipe Ø ≤	200	mm*	7.87	in*
Bore length ≤	80	m*	262	ft*
Required hydraulic fluid volume without MA09	70	l/min	2.47	cfm
Required hydraulic fluid volume with MA09	100	l/min	3.53	cfm
Required max. hydraulic fluid pressure	250	bar	3,626	psi

* depending on soil

** in combination with hydraulic power pack HP37 and mixing unit MA09

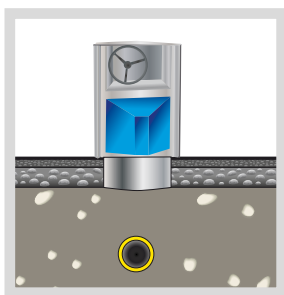


MINIMALLY INVASIVE GRUNDOPIT KS50

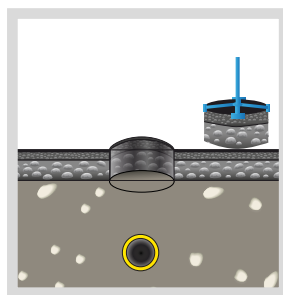
With the GRUNDOPIT KS50, gas, water, electricity and FTTH house connections are installed from the main line in the road in the smallest possible, round work pit (keyhole of just Ø 65 cm) or a narrow pit of just 65 cm in width directly into the house or into a small assembly pit in front of the house.

- Drilling from the smallest round work pit, Ø 65 cm keyhole
- Directional drilling with continuous detection
- Simple operation via control panel with colour display
- No work pits on private properties, bores directly into the basement possible
- Minimum excavation work – less is simply impossible
- Only very small work area required, minor traffic impairment
- Eco-friendly and gentle installation method
- Minimal drilling fluid requirements
- No elaborate asphaltting necessary for restoring the keyhole
- All connection jobs are carried out from the surface
- Drilling lengths up to 50 m
- Pipe diameter up to 90 mm

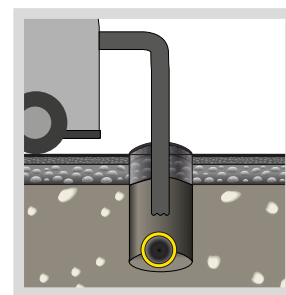
PROCEDURE



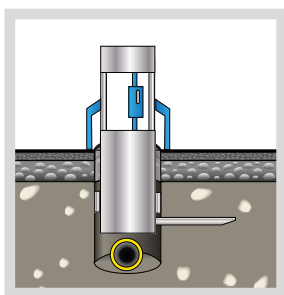
Creating the core bore with core drill unit by TRACTO-TECHNIK



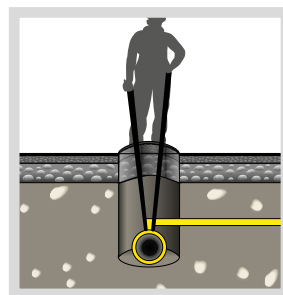
Removing the core



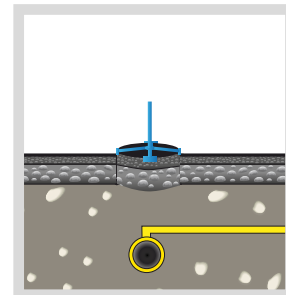
Extracting the keyhole



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



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



Reinstatement

INNOVATOR

SMART, GENTLE, FAST

CONTROL PANEL

- Fully automatic drilling
- Operation from the surface
- Ergonomic mode of operation according to the latest standards
- Directional detectable bore
- High safety for the operator
- Clearly arranged colour display with icons
- Infinitely variable adjustment of the optimal drilling parameters



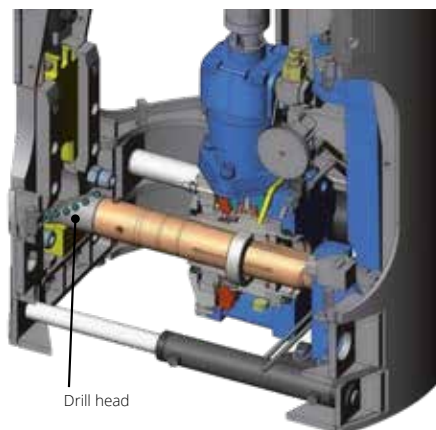
ROD CHANGE

- Fully automatic rod handling
- Ergonomic
- Quick
- Safe



ROTARY DRIVE

- Rotary drive with hollow shaft – maximum rod length for the smallest installation space
- Positive-fitting rod link – soiling-resistant, material-friendly
- Torque-dependent thrust regulation – optimal utilisation of the machine output



TRUCK PLATFORM (COMPLETE SYSTEM SOLUTION)

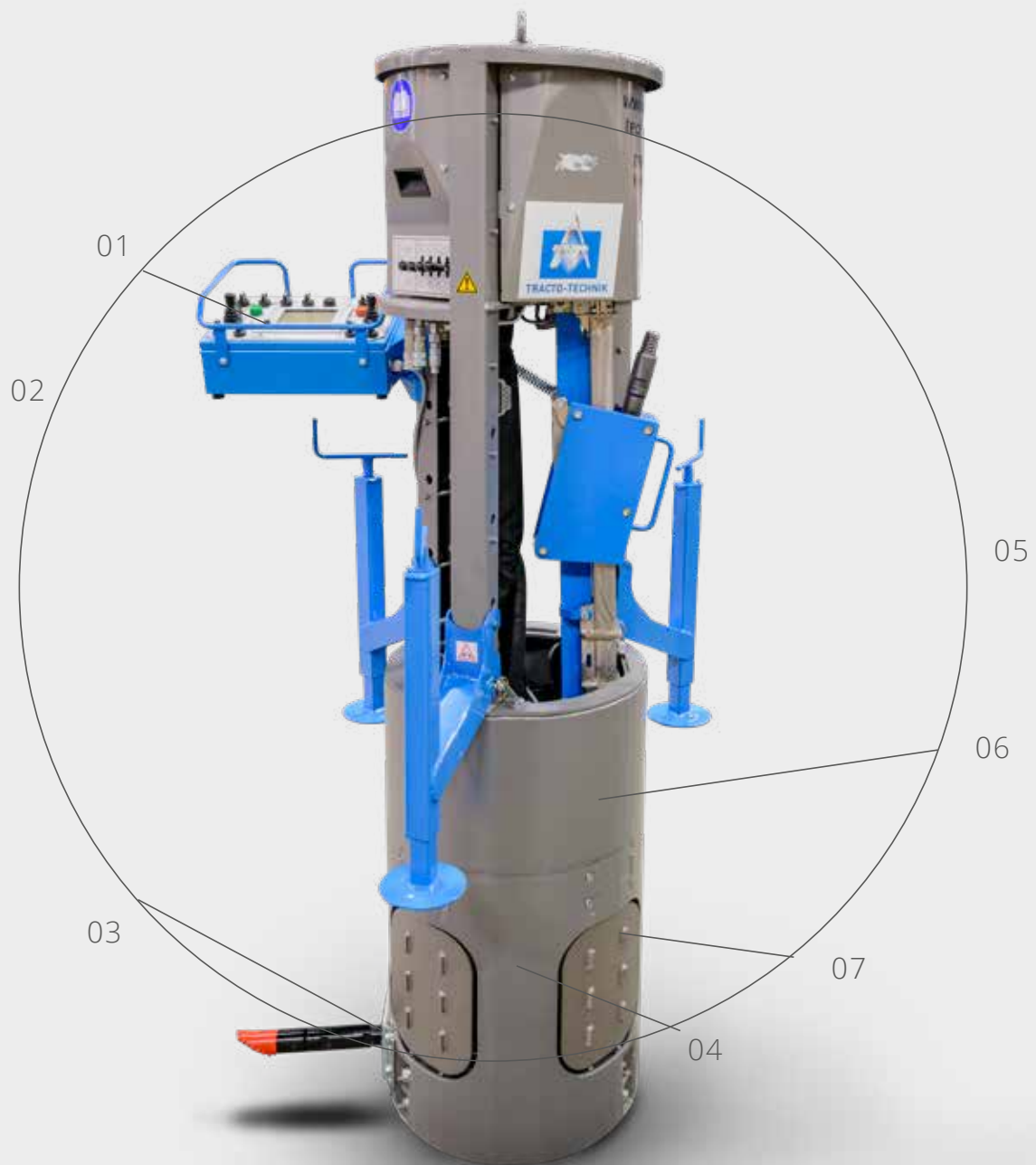


Flexible Transportmodule

PIT APPLICATION



Only the GRUNDOPIT KS50 can manage this: with a special pit application a hole can be drilled steerably from a pit only 60 cm wide.



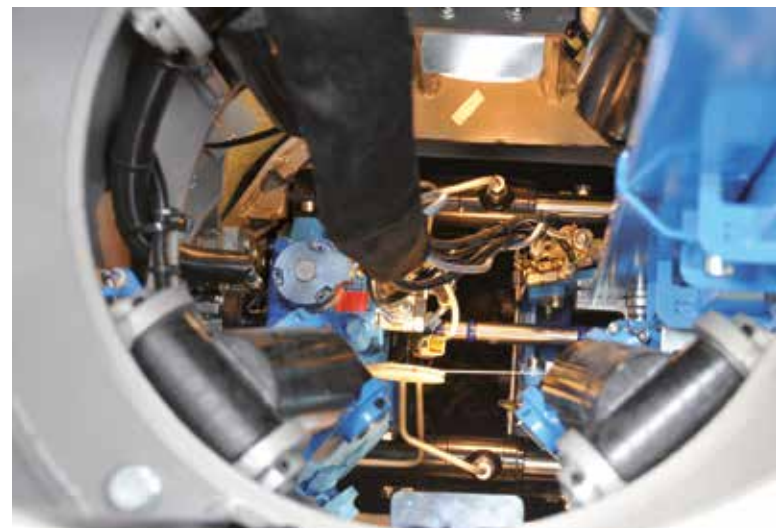
- 01 **Integrated machine control**
fully automatic drilling
- 02 **Fluid-assisted displacement drilling technique**
No 'flushing out of the bore cuttings'
- 03 **Small space between bore axis and bottom edge of machine**
direct connection of service pipe to the main line
- 04 **Integrated rod cleaning by means of high-pressure washing jet**
- 05 **Minimally invasive drilling**
from out of the smallest possible working pit, Ø 650 mm 'Keyhole'
- 06 **Closed round frame design**
stably, flexibly directional
(machine can rotate freely inside the keyhole)
- 07 **Integrated hydraulic tensioning system**
short set-up times, safe installation



Drill core



Assembly of connection fittings.



View inside the keyhole



GRUNDOPIT KS50



Completed connection



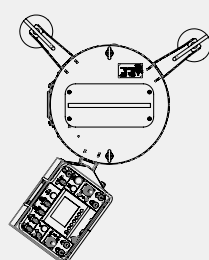
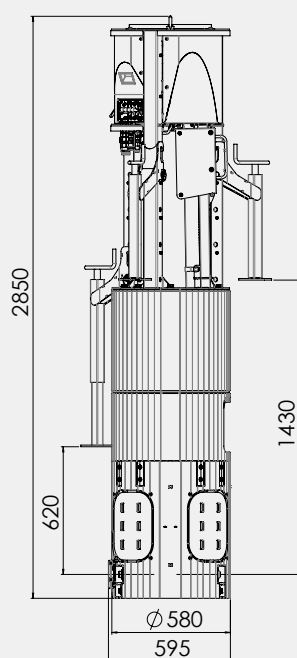
Reinstated drill core



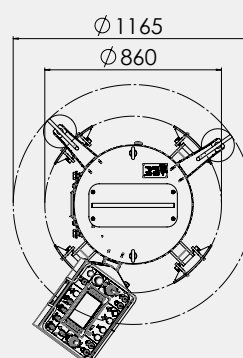
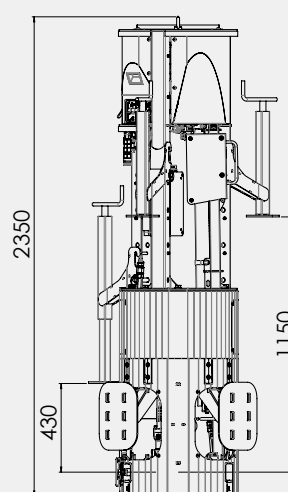
TECHNICAL SPECIFICATIONS

GRUNDOPIT KS50

SHORT VERSION



LONG VERSION



BASIC EQUIPMENT

- Drilling out of the smallest possible working pits, Ø 650 mm keyhole
- Integrated machine control with fully automatic drilling operation (except steering movements)
- Infinitely variable adjustment of the drilling parameters
- Fully automatic rod handling
- Enclosed round frame design
- Clearly arranged colour display with icons
- Rotary drive with hollow shaft
- Torque-dependent thrust regulation
- Integrated rod cleaning system
- Integrated hydraulic bracing system

PERFORMANCE DATA		METRIC		IMPERIAL	
Height; diameter	short version: H = 2.350; Ø = 595 long version: H = 2.850; Ø = 595	mm	short version: H = 92.5; Ø = 23.4 long version: H = 112.2; Ø = 23.4	in	
Weight	short version: approx. 550 long version: approx. 620	kg	short version: approx. 1,212.53 long version: approx. 1,366.85	lbs	
Content of rod box	100	m	328.08	ft	
Thrust and pullback force	50	kN	11,240.45	lbf	
Max. torque	1.200	Nm	885.07	lbf ft	
Max. spindle speed	70	rpm	70	rpm	
Pilot bore Ø	58	mm	2.3	in	
Drill rods Ø	50	mm	2.0	in	
Effective rod length	250	mm	9.8	in	
Drill rod weight	2,4	kg	5.29	lbs	
Upsizing Ø	130	mm*	5.1	in*	
Outer pipe Ø	90	mm*	3.5	in*	
Bore length	50	m*	164.04	ft*	
Min. bore radius	50	m	164.04	ft	

*depending on soil

Subject to change.

GUT GERÜSTET IST HALB GEMOHT

ACCESSORIES

Drilling tools perfectly tailored to the drilling unit guarantee optimum drilling advancement in any type of ground. It goes without saying that all parts are tough and durable.

**BORE HEAD WITH
TRANSMITTER HOUSING**



HAMMER BORE HEAD



CORE HOLE DRILL



For wall duct

QUICK-CONNECT



BACKREAMER



UPSIZING TOOLS



For installing short pipes

DETECTION TECHNOLOGY



HOLEOPENER



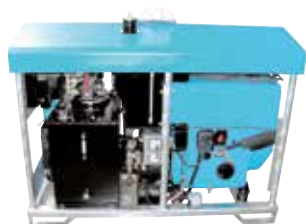
RETRIEVAL TOOL



For upsizing

SYSTEMKOMPONENTEN

DRIVE UNIT TT HP19



for GRUNDOPIT PS40

DRIVE UNIT TT HP28 / HP37



for GRUNDOPIT PS40, PS60, KS50

SPÜLEINHEIT FU1



for operation with water or water/polymer drilling fluid

MIXING SYSTEM MA04



for operation with bentonite drilling fluid

MIXING SYSTEM MA09



for operation with bentonite drilling fluid

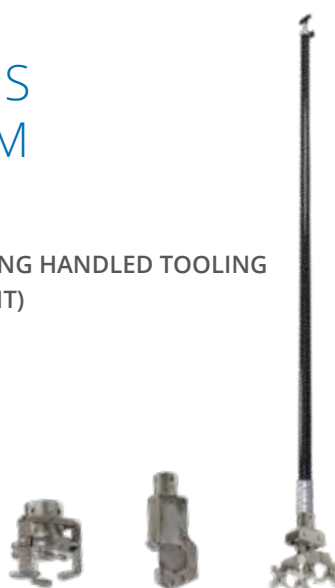
SPECIAL ACCESSORIES FOR KEYHOLE SYSTEM

SUPPORT PLATES



for use in narrow pits

LONG HANDLED TOOLING (LHT)



for installation work in the keyhole

Request a copy of our brochure on mixing plant and hydraulic stations!



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On our website, you will find important information about our company, our products and their use in digital form. You can view the contents that interest you quickly and easily via the user-friendly, clearly structured navigation. Links to our social media channels can also be found there. For ordering accessories and spare parts for our NODIG technology products there is our **eShop**. You can order merchandising items with the "mole label" there as well.

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.

FINANCING & WARRANTY

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



OGY

USED EQUIPMENT

Your used equipment is in good hands with us. Be it our own or third-party products, be it with new purchase or not - you can rely completely on our full service. We assess the equipment on-site, advise you on purchase or trade-in and carry out the professional repair. With the "Certified Used Equipment" seal of approval, we achieve the best price for you via our use machine website with access to one of the world's largest construction machinery platforms.

AFTER SALES

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 TRACTOTECHNIK 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.

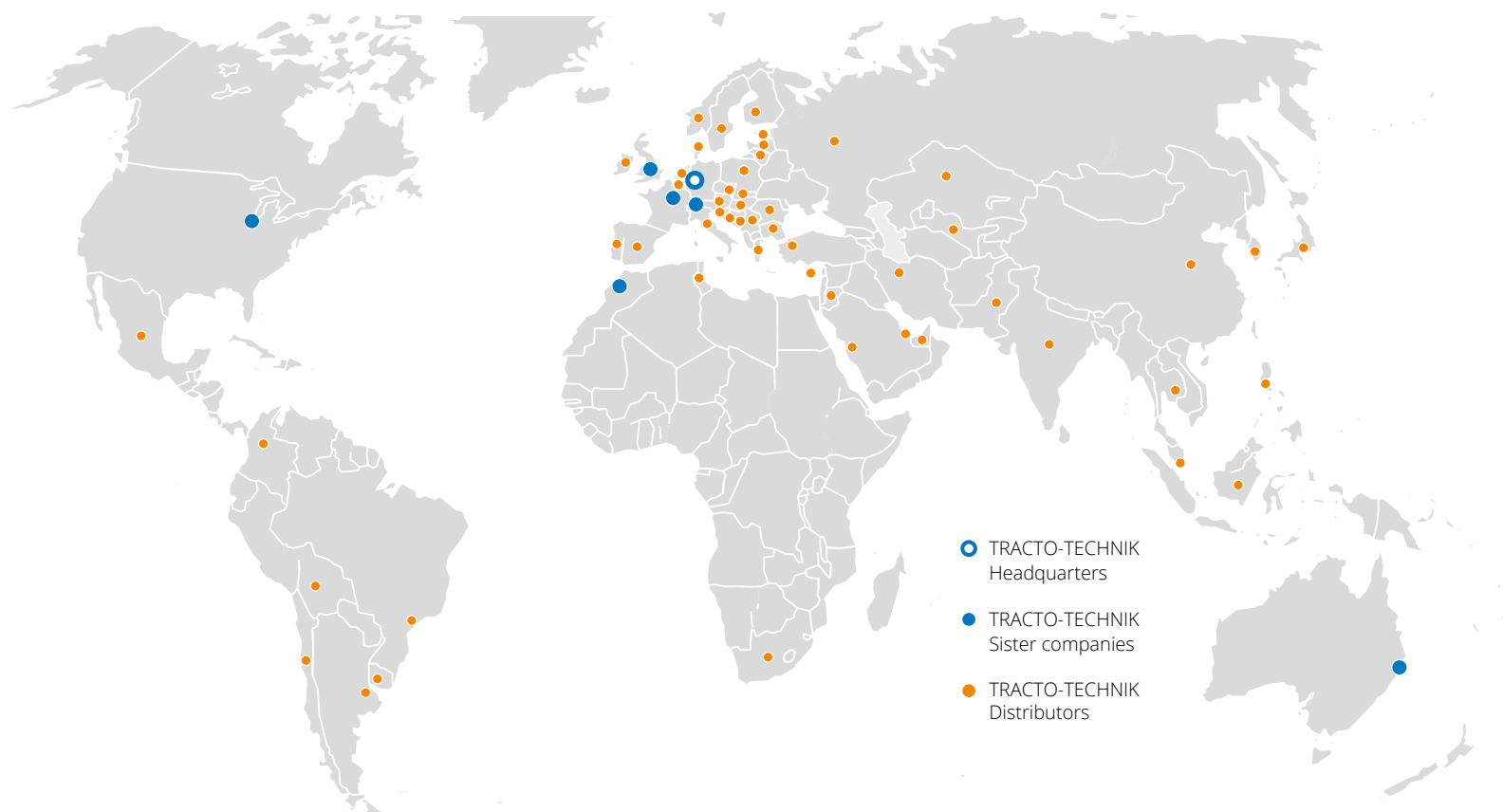
TRAININGS

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.

GEOSERVICE

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.

WORLDWIDE



- TRACTO-TECHNIK Headquarters
- TRACTO-TECHNIK Sister companies
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