



GRUNDODRILL

THE NEW GENERATION

FLUID-ASSISTED HDD RIGS &
ROCK DRILLING HDD RIGS





THE NEW DIMENSION OF DRILLING

THE NEW GRUNDODRILL GENERATION

Horizontal Directional Drilling is a complex process, which places equally diverse demands on machine technology. The intensive examination of these requirements from the user's point of view led to a unique development process in which we questioned every detail and rethought every component. The result is the new GRUNDODRILL generation with a ground-breaking concept, allowing for utmost flexibility and maximum productivity in steerable trenchless pipe installations. Thanks to the trend-setting combination of innovative technology and maximum digitisation, this is easier than you may think - or „simple & easy“ as we say.

With the new GRUNDODRILL generation, TRACTO-TECHNIK offers a complete series with six models in the performance classes from 60 to 280 kN, with the integrated concept convincing in every respect.

■ FLEXIBLE MODULAR CONCEPT

The modular design for different machine sizes and a multitude of options allow the user to configure his drilling rig from this kit according to his individual requirements.

■ PRODUCTIVE PEAK PERFORMANCE

The significantly increased rotation power and drilling fluid capacity in combination with the corresponding high drive power leads to a considerable increase in productivity. This allows the drilling rig to be optimally adapted to any geology.

■ ROCK DRILLING IN ALL PERFORMANCE CLASSES

Due to the unique machine concept, the complete series can be used as a Jet Condition System (JCS) with normal rods in conventional soils or as an All Condition System (ACS) with twin-tube rods in complex geologies and rocks.

■ INTUITIVE OPERATING CONCEPT

The intuitive operating concept, with almost all functions of the drilling rig being controlled via a central touch screen, is consistently tailored to the needs of the operator. This allows ergonomic and fatigue-free working with an increased degree of automation.

■ REMOTE-CONTROLLED DRILLING

The extensive automation of all processes enables remote-controlled drilling with the help of a specially developed, innovative remote control.

■ DIGITAL SOLUTIONS

Intelligent software solutions that centrally link planning, execution, billing, documentation and service allow for individual control and increase of productivity.



REVOLUTIONARY IN ALL PERFORMANCE CLASSES

INNOVATION DOWN TO THE LAST DETAIL

The well thought-out construction of the new GRUNDODRILL generation combines numerous innovative individual solutions into a future-oriented and unique overall concept. All models in the range have the same outstanding features that ensure maximum power for thrust, rotation and drilling fluid is always available.

An intelligent control concept makes sure that the overall power is optimally transferred onto the individual components as required. This makes the new GRUNDODRILL generation the most efficient and productive drilling rig in its class on the market.

POWERFUL ROTARY DRIVE

- A variable torque adjustment considerably increases the productivity of the drilling rigs. Torque and rotational speed can be optimally adapted to the respective geology and drilling tools.
- Compared to conventional drilling rigs, the new concept leads to a considerably higher power output over the entire speed range.

MAXIMUM DRILLING FLUID OUTPUT

- Depending on the performance class, different pump options are available, each providing the maximum drilling fluid volume at maximum pressure at the same time.
- This particularly high drilling fluid performance guarantees fast drilling progress and maximum clearing capacity.

EFFECTIVE THRUST

- The Rack & Pinion drive with significantly increased idle stroke speeds ensures shorter cycle times in push mode and when exchanging the rods.
- The infinitely variable thrust and pulling force limitation and an anti-stall-valve guarantee safe, fatigue-free and material-friendly working.

60 kN

JCS60
ACS60

90 kN

JCS90
ACS90

130 kN

JCS130
ACS130

160 kN

JCS160
ACS160

200 kN

JCS200
ACS200

280 kN

JCS280
ACS280



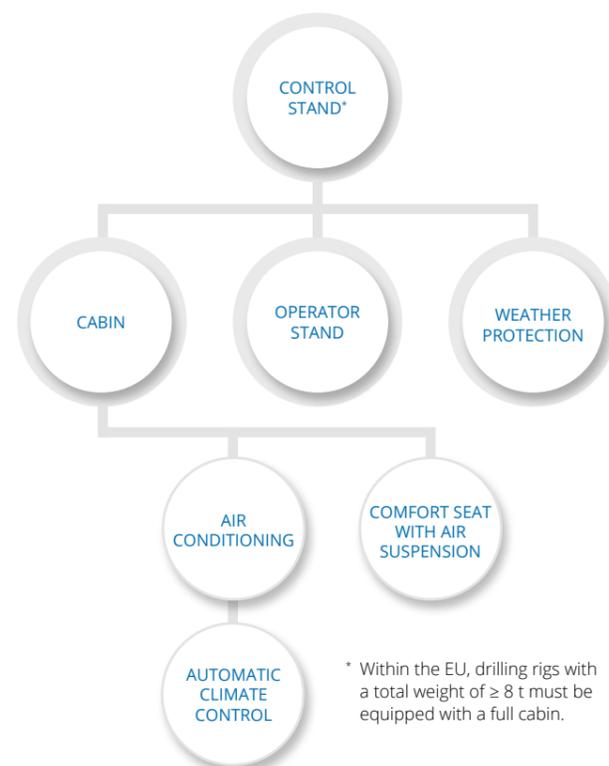
THE CHOICE IS YOURS

A FLEXIBLE MODULAR SYSTEM

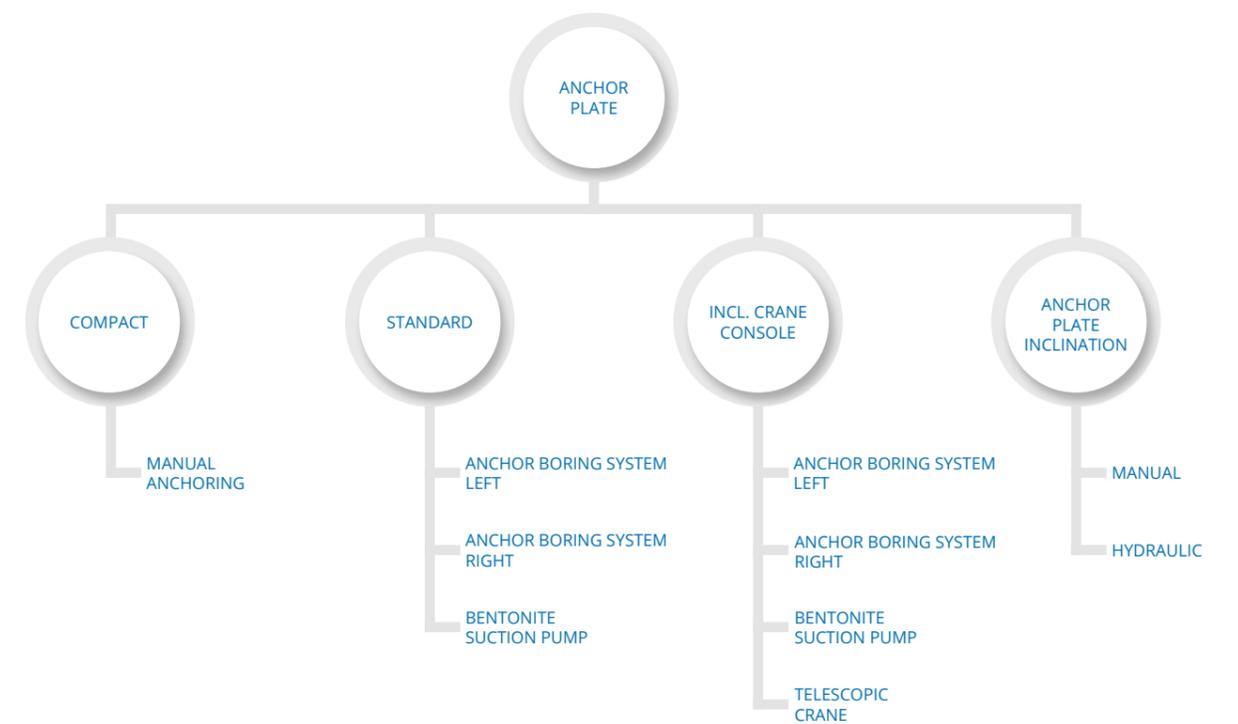
Due to the modular construction of the new GRUNDODRILL generation, it is possible to configure each drilling rig individually. A selection of almost forty options allows the user to flexibly equip his drilling rig according to its application range and the desired comfort. That way, you only pay for the features you really need for your tasks.

The illustrations show examples of the options for different control stands and anchoring plates.

In addition, numerous other options are available, such as central lubrication, camera surveillance, high-pressure cleaners or mounting kits for cable-guided drilling. Our sales staff will be happy to advise you on the configuration of your individual drilling rig.



* Within the EU, drilling rigs with a total weight of ≥ 8 t must be equipped with a full cabin.





MOBILE COMMAND CENTRE

The unique and innovative operating concept of the new GRUNDODRILL generation is the result of a thorough, in-depth development process in close cooperation with drill masters and experts in ergonomics and biomechanics. By combining state-of-the-art control technology with intelligent software and a high degree of automation, the operator can concentrate more than ever on his most important activity: drilling.

OPERATION "SIMPLE & EASY"

- The entire operating concept is self-explanatory and intuitive – comparable to modern smartphones or tablets.
- The automation of all processes and work steps leads to an increase in productivity and to a relief of the operator.
- All central functions of the drilling rig can also be controlled manually as an alternative.

TOTAL OVERVIEW

- An integrated camera concept automatically provides the operator with an optimum overview of all relevant areas of the drilling rig at all times.

This modern and intuitive operating concept makes a central contribution to increasing productivity in the HDD and considerably facilitates the training of new drill masters.

COMFORT OPERATOR CABIN – THE PERFECT WORKPLACE

The design and equipment of the comfort operator's cabin have been consistently adapted to the needs of the operator. In combination with the camera concept, large panoramic windows offer an optimum all-round view and eliminate the need to swivel the cabin during operation. This makes it possible to work even in the tightest of spaces. The significantly enlarged cabin, in combination with an optimised cabin suspension and an ergonomic and optionally air-suspended seat, becomes the perfect workplace.

FURTHER FEATURES:

- Central locking, electronic immobiliser, numerous shelves and charging sockets, bottle cooler, radio with Bluetooth hands-free kit
- Optional: air conditioning or automatic climate control





Camera surveillance with GRUNDODRILL.

NEW PERSPECTIVES

REMOTE CONTROLLED DRILLING

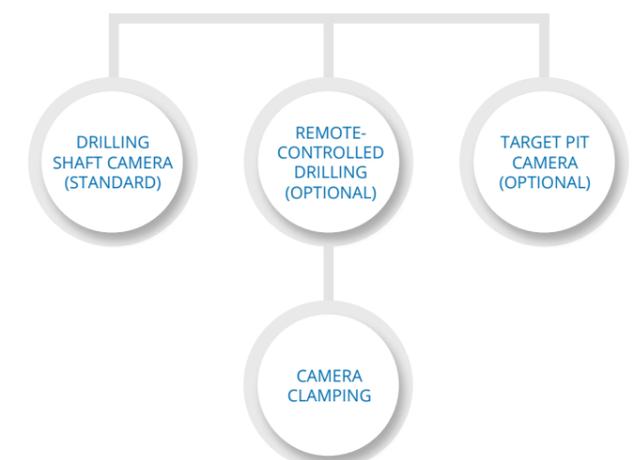
The drilling rigs of the new GRUNDODRILL generation can be operated completely by remote control even in drilling mode. Due to the intelligent operating concept, all functions of the drilling rig can be conveniently controlled and monitored from outside the operator's cabin using a specially designed remote control unit. This particularly hard-wearing device, which is suitable for construction sites, combines the same operating elements that are located in the cabin with an outdoor tablet, which is used as the central operating unit of the machine control system.

- All control elements of the cabin and the remote control are identical in function, form and arrangement. This allows the equipment operator to choose freely and to switch quickly and smoothly between the different operating modes.
- In combination with the new camera concept, full control of the entire drilling rig is always guaranteed, even when operating with the remote control.
- Reduced downtimes on the construction site due to increased flexibility. Short-term personnel bottlenecks – e.g. when mixing fresh drilling fluid – can be bridged by the equipment operator operating the drilling rig and the locating technology simultaneously.

- New perspectives for the operator – for example: Monitoring of the drilling fluid backflow or the pipe pulling process in the target pit, optical control when bypassing existing pipes and obstacles etc.

The GRUNDODRILL remote control unit increases safety and flexibility in daily use on the job site and the efficiency when drilling. As simple as possible.

OPERATION/HMI





PERFECT MATCH

INTEGRATED LOCATION SOLUTION

The integration of the DCI location display into the control concept of the new GRUNDODRILL generation is a unique feature that sets new standards in the HDD market. By merging drilling equipment and locating technology into a single unit, all relevant data is brought together centrally to further simplify the drilling process.

TREND-SETTING PARTNERSHIP

Reliable and precise locating technology is required for the safe and precise control of the drill head. As the manufacturer of the first detection systems to capture the inclination and roll of the drill head, Digital Control has been setting the standards in this field worldwide for decades. This continuous innovative strength makes DCI the perfect partner for developing the sophisticated location feature.

The result of the cooperation is as ingenious in its conception as it is easy to use. A hardware module developed by DCI (AIM – Aurora Interface Module) and an interface jointly developed by DCI and TRACTO-TECHNIK are fully compatible with all locating systems of the current DCI F series.

- One central screen for machine data and location information – even with remote drilling.
- Compatible with DCI locating systems F1, F2, F5 and Falcon F1, Falcon F2, Falcon F5.
- The integration of all DCI settings and the adaptation of the look & feel to the TRACTO-TECHNIK environment simplifies the introduction and training of new operators.
- Contributes decisively to the fast and more sustainable training of new specialists – drill masters and locating technicians can follow the drill head together.

TT TRACTO-TECHNIK

DCI
DIGITAL CONTROL INC.



FAST LOADERS WITH GROWTH POTENTIAL

The new GRUNDODRILL generation's rod magazine combines a large magazine capacity with an innovative and flexible reloading concept. This clever solution guarantees very short cycle times when changing drill rods and minimum effort when reloading or removing drill rods for particularly long bores.

INTELLIGENT STOCK KEEPING

The magazine concept significantly increases flexibility and productivity when using the drilling rig.

- Operates space-saving, in very tight site conditions - the drilling rig is fully operational in the specified transport width.
- Optional reloading boxes make reloading additional drill rods a child's play.

- A telescopic crane, also available as an option, ensures self-sufficient, ergonomic and safe handling of the reloading boxes.
- Different reloading options are available:
 - Individual drill rods can be fed manually from the side and are then loaded fully automatically into the drill rod box.
 - Automated working directly from the reloading box - the rods are removed directly from the reloading box and transported to the drilling axis.
 - Fully automatic loading or unloading of the rod box from the reloading box.
 - Automation allows all reloading options to be used without an operator in the cabin.

RELIABLE AND FAST THROUGH ALL GEOLOGIES

A new generation of drill rods, which is precisely matched to the GRUNDODRILL rigs, enables significantly lower bending radii with higher performance and maximum drilling fluid output even over long drilling distances.

- A newly designed polygon plug-in connection for the inner rods of the twin-tube rods ensures reliable torque transmission in the tightest of spaces. This ensures high drilling fluid output and productivity, even when using the twin-tube rods.
- One-piece forged drill rods with ELICON threads and bearing mounted inner rods ensure reliability and long service life.





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 intuitive. The first modules of this 360° experience are the **Cockpit** and **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 QUICKPLANNER3D

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

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

CLICK & BUY IN THE ESHOP

For easy and quick ordering of accessories and spare parts for our NODIG technology we have a 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.

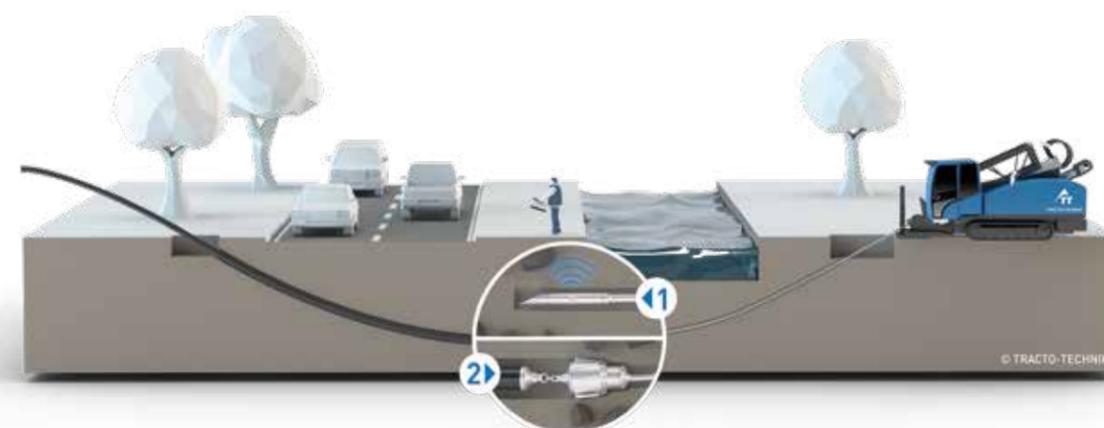
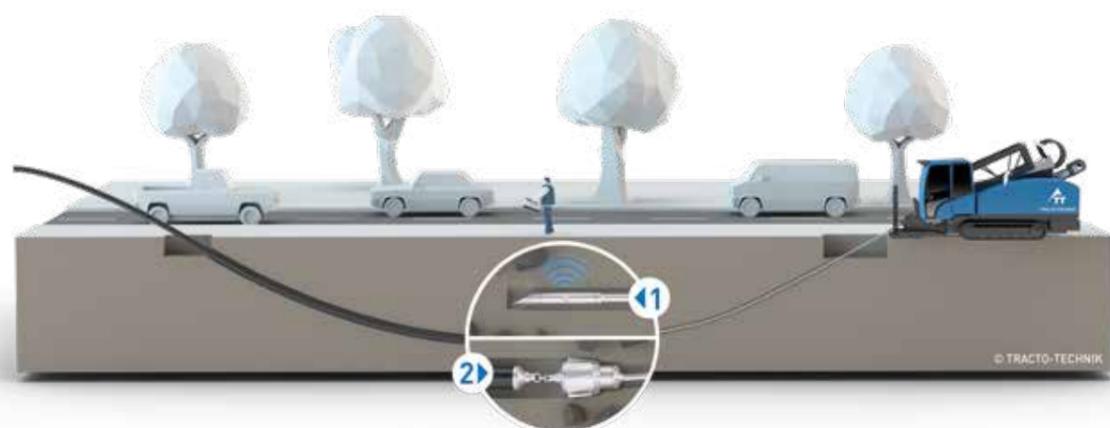
www.TRACTO-TECHNIK.com/Services/360-Digital-Solutions/

Cockpit . QuickPlanner3D . eShop

FULL PERFORMANCE

ECONOMICAL RIGHT FROM THE FIRST METRE

Like all GRUNDODRILL systems, the new generation is characterised by outstanding quality, long service life and a wide range of applications. Thanks to the flexible concept, the new series works even more productively with any type of application.



PILOT BORE*

IMPLEMENTATION OF THE PLANNED DRILLING PROCESS

Linear bores: Pushing and rotation of the bore head.
Curved bores: Pushing of the aligned drill head (supported by paddle mode if required).

UPSIZING & PIPE PULLING*

INSTALLATION OF THE PRODUCT/PROTECTION PIPE

Reverse pulling of the backreamer with pipe attached, intermediate upsizing may be necessary.

UNDERCROSSINGS

The standard applications with the GRUNDODRILL include directional drilling operations beneath roads, railway tracks and buildings.

LONGITUDINAL BORES

Not only undercrossings, but also linear drilling operations taking a parallel course to roads, water bodies and buildings are common applications.

ROCK DRILLING

Bores in difficult geological conditions, especially in hard solid rock, can be carried out with the JCS series using a mud motor. For the ACS series with twin-tube rods, bores through rock are standard.

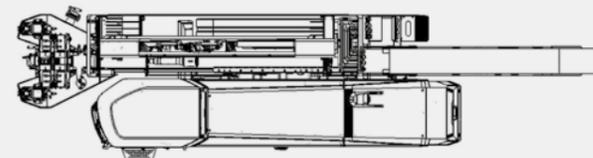
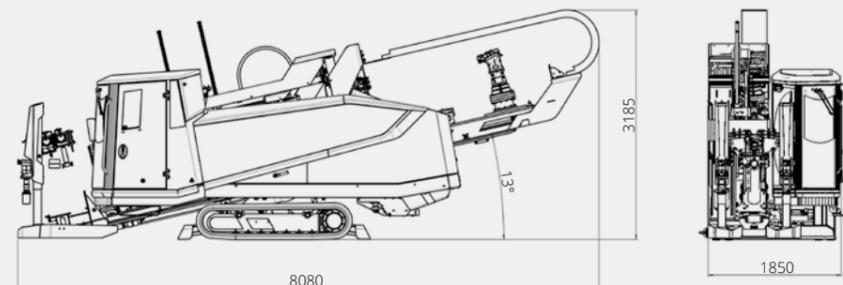
* Depending on soil class and required upsizing diameter special drilling tools are used.

MAX MAXIMUM PRODUCTIVITY IN ALL PERFORMANCE CLASSES

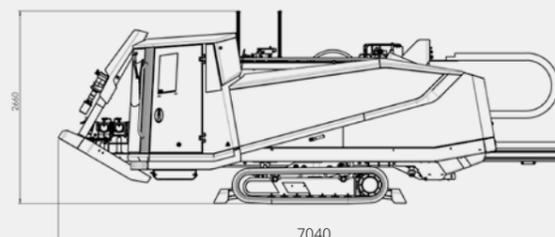


GRUNDODRILL JCS130

WORKING POSITION



TRANSPORT POSITION



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

	metrical	imperial
Thrust and pullback force	130 kN	29,225 lbf
Max. feed rate (without load)	70 m/min	230 ft/min
Max. torque EL D67	4.500 Nm	3,320 lbf ft
Max. spindle speed EL D67	185 U/min	185 rpm
HP bentonite pump P62	190 l/min	50 gpm
Bentonite pressure P62 85	85 bar	1,233 psi
HP bentonite pump P72	320 l/min	85 gpm
Bentonite pressure P72	70 bar	1,015 psi
Rod magazine contents EL D67	168 m	551 ft
Number of rods	56 pcs	56 pcs
Effective rod length	3.000 mm	118 in
Pilot bore EL D67	100 mm	4.00 in
Min. bore radius EL D67	32 m	105 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
Length x Width x Height (working position)*2	8.080 x 1.850 x 3.185 mm	318.1 x 72.8 x 125.4 in
Max. weight *2	tbd kg	tbd lbs
Engine manufacturer	Cummins	Cummins
Engine type	F3.8	F3.8
Emissions standard	Stage V	Stage V
Max. engine output	100 kW	136 hp
Diesel tank capacity	134 l	35 gal
AdBlue tank capacity	18,9 l	5 gal
Fresh water tank capacity	120 l	32 gal
Inclination angle	0–30 °	0–30 °
Upsizing Ø* ≤ Outer pipe Ø*	500/400 mm	20/16 in
Bore length* ≤	300 m	984 ft

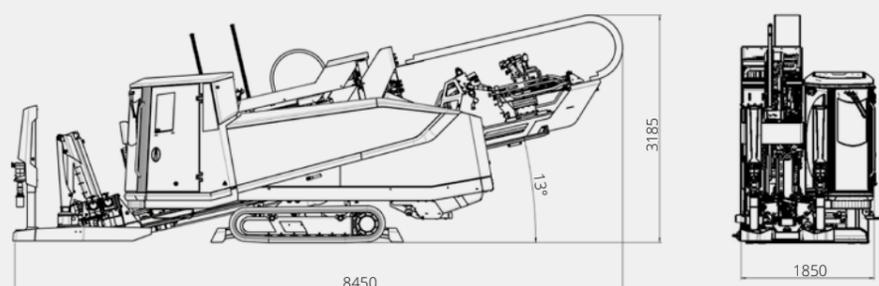
* depending on soil *1 Option *2 depending on configuration | Data subject to change

MAX MAXIMUM PRODUCTIVITY IN ALL PERFORMANCE CLASSES

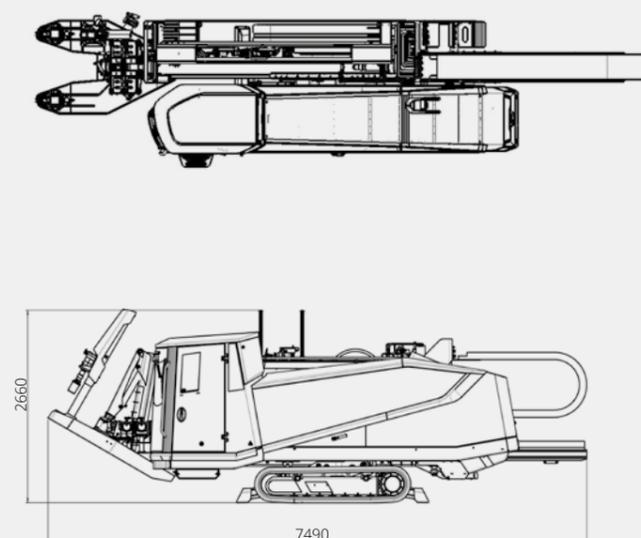


GRUNDODRILL ACS130

WORKING POSITION



TRANSPORT POSITION



FEATURES

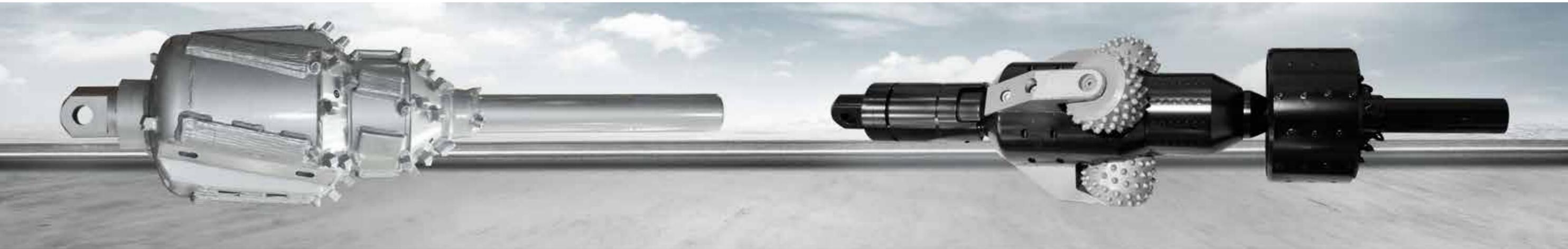
- **ACS – ALL CONDITION SYSTEM – for drilling in all geologies incl. solid rock/rock**
- Cummins engine Tier 5, 115 kW
- Can optionally be used with EL-D80 twin-tube rods or EL D67 JET rods
- Variable torque and speed adjustment for maximum rotational performance and maximum productivity at any speed
- 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

	metrical	imperial
Thrust and pullback force	130 kN	29,225 lbf
Max. feed rate (without load)	70 m/min	230 ft/min
Max. torque EL D80 / EL D67	4.500 Nm	3,320 lbf ft
Max. torque EL D80 (inner rod)	1.200 Nm	885 lbf ft
Max. spindle speed EL D80 / EL D67	230 U/min	230 rpm
Max. spindle speed EL D80 (inner rod)	400 U/min	400 rpm
HP bentonite pump P62	190 l/min	50 gpm
Bentonite pressure P62 85	85 bar	1,233 psi
HP bentonite pump P72	320 l/min	85 gpm
Bentonite pressure P72	70 bar	1,015 psi
Rod magazine contents EL D80 / EL D67	120/168 m	394/551 ft
Number of rods	40/56 cs	40/56 pcs
Effective rod length	3.000 mm	118 in
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
Length x Width x Height (transport position)*	7.490 x 1.850 x 2.660 mm	295 x 72.8 x 104.7 in
Length x Width x Height (working position)*	8.450 x 1.850 x 3.185 mm	332.7 x 72.8 x 125.4 in
Max. weight*	11.869 kg	26,167 lbs
Engine manufacturer	Cummins	Cummins
Engine type	F3.8	F3.8
Emissions standard	Stage V	Stage V
Max. engine output	115 kW	156 hp
Diesel tank capacity	134 l	35 gal
AdBlue tank capacity	18,9 l	5 gal
Fresh water tank capacity	120 l	32 gal
Inclination angle	0–30 °	0–30 °
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

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



WELL EQUIPPED IS HALF WAY THERE

ACCESSORIES

Drilling tools, perfectly adapted to the drilling rig, guarantee optimal drilling progress through every type of soil. Robustness and durability of all parts are guaranteed.

STANDARD EQUIPMENT



Transmitter housing with bore head



Medium Soil Reamer



Cone Reamer



GRUNDODREAM

ROCK DRILLING EQUIPMENT



ELICON 95 rock drilling unit with roller chisel



Hard Soil Reamer



Hard Soil Rockreamer



Holeopener

FULL SUPPLY

MIXING UNITS

A first-class drilling fluid technique is an important component for successful drilling. In combination with the drilling rig and drilling tools, the TRACTO-TECHNIK drilling fluid technology provides a coherent package for efficient work – even in complex soils. Powerful mixing systems and pumps guarantee high drilling fluid volumes. Professional measuring units and drilling fluid additives are available to ensure a drilling fluid quality that is well adapted to the soil.

TRANSPORT

Learn more about this topic in our in-house training courses or ask us for additional information on mixing systems and truck platforms.



Mixing unit MA07



Mixing unit MA010



SERVICES ALL AROUND TRENCHLESS TECHNOLOGY INTELLIGENT SOLUTIONS WITH ADDED VALUE

Before or after any purchase either in person or online - we are always at hand with help and advice for you. We can offer you comprehensive services and consultation that are specially tailored to the requirements in trenchless pipeline construction. Our services are as diverse as our range of products so you can concentrate fully on your business.

www.TRACTO-TECHNIK.com/Services

DIGITAL SOLUTIONS

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.

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 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.

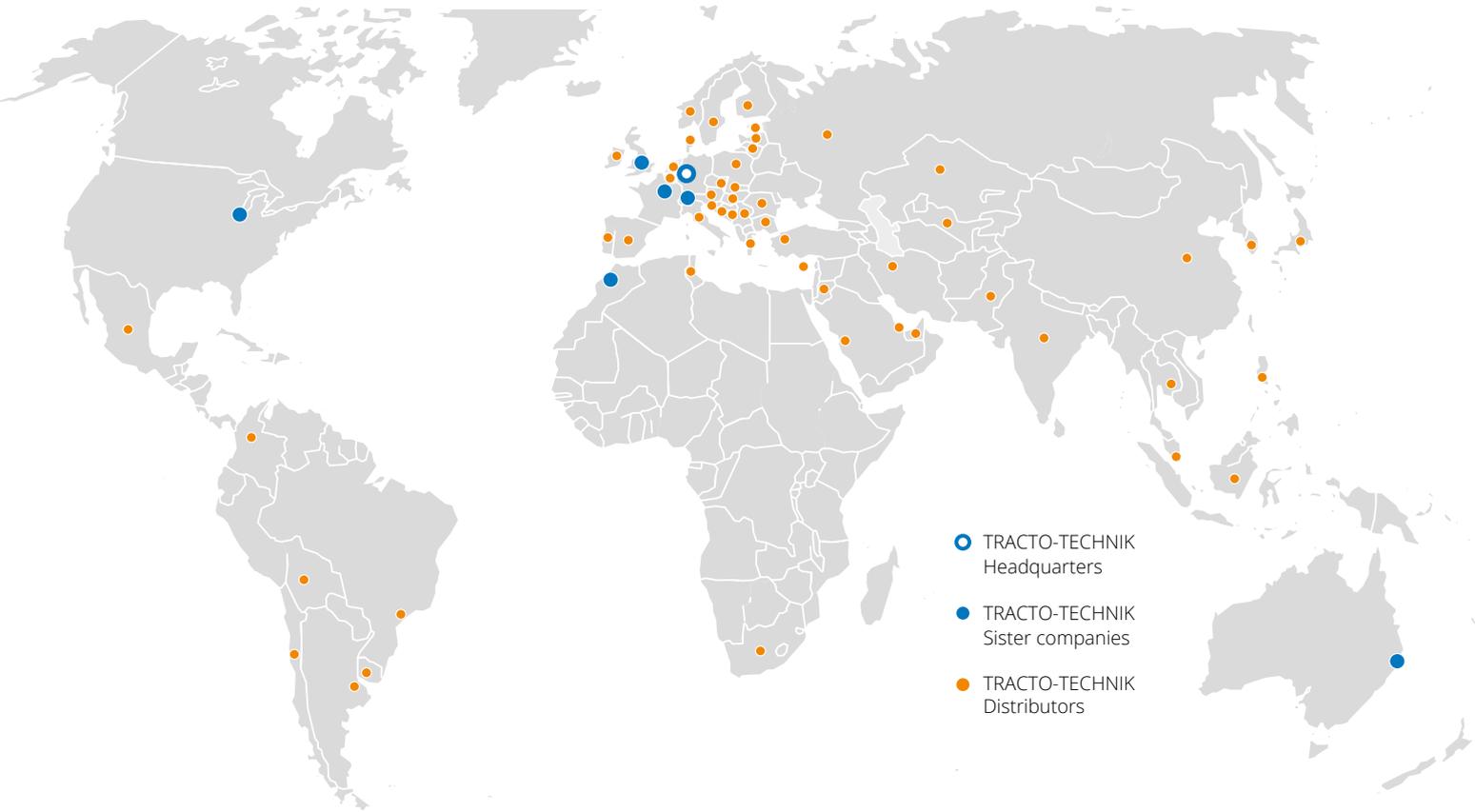
TRAININGS

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.

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