

TRACTO

All information
about mixing systems

TRACTO.COM/MA



MIXING SYSTEMS AND
DRILLING FLUID LOGISTICS
THE OPTIMAL
DRILLING FLUID



ADVANCED TRENCHLESS TECHNOLOGY

RELIABLE MIXING TECHNOLOGY IN FULL FLOW

The mixing systems from TRACTO

First-class drilling fluid technology is an important component of successful drilling. Together with the bore rig and drilling tools, TT drilling fluid technology forms an optimum unit for efficient work, even in difficult soil conditions. High-performance mixing systems and pumps guarantee a high flow rate and optimum quality of the drilling fluid.

The drilling fluid in HDD technology

The drilling fluid made of water and Bentonite in HDD drilling technology has many indispensable functions. It is used, among other things, to loosen the soil and support the free cut, to discharge the cuttings, to seal the borehole and to reduce the wear of the drilling and expanding tools. However, the most important function of the HDD drilling fluid is to stabilise the drilling channel because gravity permanently acts on the horizontal borehole. The mud must ensure that the drill channel does not collapse and that the dislodged cuttings are continuously discharged. And this works most reliably with Bentonite, which consists of natural, particularly swellable clay minerals.

Valuable mixture without alternative

The specific nature of the clay minerals makes Bentonite an indispensable carrier for the drilling fluid in the HDD. Other drilling fluids are not suitable for horizontal drilling due to the special conditions. High-quality bentonites consist to 60 - 80% of a highly swellable clay mineral called montmorillonite.

In the mixing system, the drilling mud required for loosening and transporting the soil as well as for supporting the borehole is mixed, by taking into account the soil properties found and pumped internally through the drill rod to the drilling or expander head by a powerful mud pump.

In order to achieve optimal soil penetration, it is essential to adapt the parameters of the drilling fluid to the prevailing soil conditions. Therefore, a sophisticated mixing technique is crucial in the HDD process.

The drilling fluid is mixed in a mixing chamber. The mud additives enter the mixing tank via a mixing funnel and a Venturi nozzle, where they are circulated several times. After a short swelling time, the drilling fluid is fed to the bore rig via powerful and robust pumps. The mixing systems are driven via hydraulic power units, power generators or the truck's auxiliary drive.

TRACTO offers suitable mixing systems for bore rigs up to the 30 tonne class. Depending on the size of the bore rig and the intended use, the right machine can be selected from the wide product range. The systems differ, for example, in the number and capacity of the mixing tanks and the power of the pumps. Furthermore, various drive concepts as well as numerous other options are available. Larger mixing systems can be individually mounted on trucks or integrated.

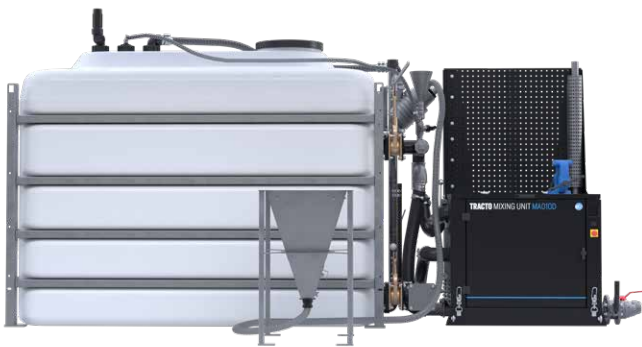
Mixing systems
and drilling
fluid
logistics
at a glance



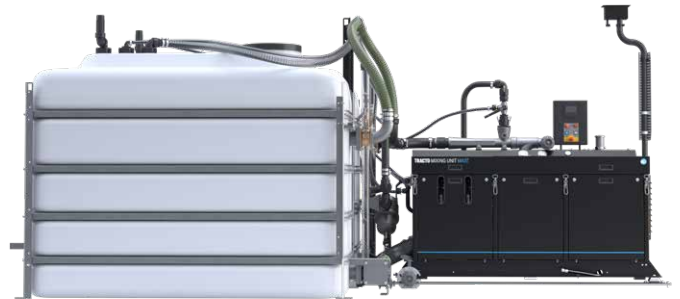
RINSING UNIT FU01



MIXING SYSTEM MA09



MIXING SYSTEM MA010D



MIXING SYSTEM MA07



TRUCK SET-UP



MIXING SYSTEM BMS E2P



MIXING AND RECYCLING UNIT MRU250HE



VACUUM SUCTION BARREL

RINSING UNIT FU01

THE ECONOMIC

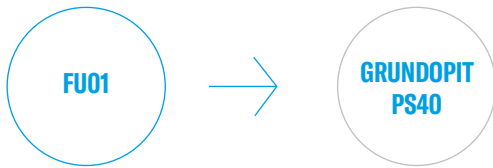


The compact water rinsing unit is particularly suitable for short bores and installing smaller diameter pipes. For these applications, it is not necessary to add Bentonite. Rinsing of the bore, as well as lubrication and cooling of drilling tools and the rods is done with water only. Without the need for Bentonite, the GRUNDOPIT PS40 pit drilling rig and the FU01 provide an economical solution for short crossings and house connections.

VARIANTS

FEATURES

- Compact and lightweight tool for short bore paths
- No admixture of Bentonite required
- Water tank with 300 litre tank capacity
- Eyelets for easy transport on the construction site
- High-pressure pump with 14.6 l/min flow rate and 40 bar pressure
- Pump can also be used as a washing device by changing the suction to fresh water
- Filling opening on top for the addition of polymers
- Operation in combination with hydraulic power units HP19 and HP28



TECHNICAL DATA	FLUSHING UNIT FU1
Length x Width x Height	1,240 x 835 x 1,000 mm
Weight (empty)	approx. 120 kg
Tank volume of fresh water tank	300 l
Max. flow rate of high-pressure pump	14.6 l/min
Max. pressure of high-pressure pump	40 bar
Hydraulic oil quantity	13 l/min
Max. hydraulic oil pressure	85 bar
Sound power level Lwa	< 80 dB(A)

MIXING SYSTEM MA09

QUICK CONNECTION

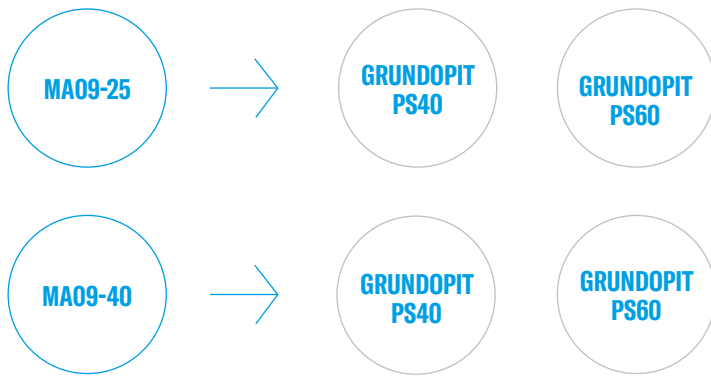
The compact, powerful MA09 Bentonite mixing system is ideal for smaller HDD drilling rigs such as the GRUNDOPIT PS40 and PS60 but can also be used for other bore rigs. The high circulation rate of the mixing pump (500 l/min) enables extremely fast mixing of the drilling fluid with only short drilling pauses. A small footprint of only 1.40 m and an empty weight of only 370 kg make transport easy.



VARIANTS

FEATURES

- Circulating pump for mixing with 500 l/min
- Mixing tank with capacity of 1,100 l and internal distribution system
- Venturi nozzle
- High-pressure pump with max. 40 l/min (depends on version)
- Large Bentonite funnel for easy filling
- Hot-dip galvanised base frame with forklift pockets and eyelets for easy transport
- Optional 200 l fresh water tank, high-pressure pump can also be used as a washing device by changing the suction to fresh water
- Operation in combination with hydraulic power units HP19, HP28 or HP 37



TECHNICAL DATA	MIXING SYSTEM MA09-25 AND MA09-40
Length x Width x Height (with fresh water tank)	1,450 x 1,400 x 2,050 mm
Length x Width x Height (without fresh water tank)	1,450 x 1,400 x 1,550 mm
Weight empty, without/with fresh water tank	370/390 kg
Weight full, without/with fresh water tank	1,500/1,700 kg
Mixing tank volume	1,100 l
Tank volume of fresh water tank	200 l
Max. flow rate of mixing pump	500 l/min
MA 09-25, IN COMBINATION WITH GRUNDOPIT PS40 AND HYDRAULIC POWER UNIT HP28	
Max. flow rate of high-pressure pump	25 l/min
Max. pressure of high-pressure pump	40 bar
Required hydraulic oil quantity	20 l/min
Required max. hydraulic fluid pressure	180 bar
MA 09-40, IN COMBINATION WITH GRUNDOPIT PS60 AND HYDRAULIC POWER UNIT HP37	
Max. flow rate of high-pressure pump	40 l/min
Max. pressure of high-pressure pump	40 bar
Required hydraulic oil quantity	30 l/min
Required max. hydraulic fluid pressure	180 bar

MIXING SYSTEM MA010D HIGH-PRESSURE FILL-UP

The MA010D Bentonite mixing system is ideal for any drill rig with its own high pressure Bentonite pump. The tank system is available with one or two mixing tanks. Thanks to the 1300 l/min. mixing and transfer pump, the drilling fluid is supplied almost instantly and is pumped to the drill rig at up to 650 l/min.



VARIANTS

FEATURES

- Self-priming, completely maintenance-free, 1300 l/min. centrifugal pump
- 6% mixing ratio possible
- Mixing tanks with level indicator and integrated distribution system for optimum circulation of the drilling fluid
- 3 bar maximum pressure (for long conveying distances)
- Fuel intake optionally directly from the truck diesel tank
- Stepless adjustment of engine speed and flow rate
- Particularly compact design
- Integrated workbench with vice and tool wall
- Large Bentonite funnel
- Optional transport frame for flexible use (see fig.)
- Filling filter (eddy current filter)
- Numerous options available for truck set-up

Mixing system configurations

- 1 mixing tank, 4,000 l
- 1 mixing tank 4,000 l + 1 fresh water tank 4,000 l
- 2 mixing tanks, each 4,000 l



TECHNICAL DATA	MIXING SYSTEM MA010-D
Length x Width x Height (mixing block without tank system)	1,060 x 800 x 1,800 mm
Mixing system weight	460 kg
Weight of mixing tank empty (1-tank system)	660 kg
Weight of mixing tank and auxiliary tank, empty (2-tank system)	1,260 kg
Weight of mixing system, 2 tanks filled	9,720 kg
Mixing tank volume	4,000 l
Tank volume of auxiliary tank	4,000 l
Max. flow rate of mixing and transfer pump	1,300 l/min
Max. pressure of mixing and transfer pump	3 bar
Engine manufacturer	Hatz
Engine model	1D90Z
Emissions standard	Tier V
Max. engine power	10.7 kW
Max. engine speed	2,800 rpm
Number of cylinders	1 unit
Displacement	722 ccm
Diesel tank capacity	10 l

MIXING SYSTEM MA07

LONG-TERM SUPPLY

The MA07 mixing system is a continuous Bentonite mixing and supply system for all HDD drilling rigs with integrated Bentonite high-pressure pump. The special tank and pump system ensures continuous mixing and simultaneous delivery of drilling fluid. The MA07 is available in 2 drive versions:

MA07D with integrated 28 kW Kubota diesel engine and MA07E for operation with power generator.



VARIANTS

FEATURES

- Continuous operation with simultaneous mixing and pumping of drilling fluid in two 4,000 l mixing tanks possible
- 2 independent, self-priming centrifugal pumps, completely maintenance-free, for simultaneous mixing of the drilling fluid
- Mixing tanks with level indicator and integrated distribution system for optimum circulation of the drilling fluid
- Filling filter (eddy current filter)
- The Bentonite funnel with powerful Venturi nozzle processes more than 25 kg of dry Bentonite per minute
- The 1,500 l/min. mixing and circulating pump supplies the drilling

- fluid suspension almost instantly
- The transfer pump delivers the drilling fluid suspension to the bore rig at a rate of 650 l/min
- Fast, convenient cleaning
- Numerous options available for truck set-up

MIXING SYSTEM CONFIGURATIONS

- 2 mixing tanks, each 4,000 l
- 2 mixing tanks, each 4,000 l + 1 fresh water tank 800 l



TECHNICAL DATA	MIXING SYSTEM MA07
Tank volume of mixing tanks	4,000 l
Number of mixing tanks	2 units
Max. flow rate of mixing pump	1,500 l/min
Max. pressure of mixing pump	3,5 bar
Max. flow rate of transfer pump	700 l/min
Max. pressure of transfer pump	3 bar
DRIVE OF MIXING SYSTEM MA07D	
Length x Width x Height (mixing block) MA07-D	2,300 x 1,120 x 1,800 mm
Weight of mixing system MA07-D	1,160 kg
Weight of mixing tank, empty	1,300 kg
Weight of mixing system + mixing tanks, full MA 07-D	10,460 kg
Engine manufacturer	Kubota
Engine model	D1803
Exhaust emissions standard*	3A/Tier 4 or Tier V
Max. engine power	28 kW
Max. engine speed	1,840 rpm
Number of cylinders	3 units
Displacement	1,826 l
Diesel tank capacity	60 l
Sound pressure level LPA	79 dB(A)
Sound power level (LwA)	101.4 dB(A)
DRIVE OF MIXING SYSTEM MA07E	
Length x Width x Height (mixing block) MA07-E	2,200 x 1,120 x 1,800 mm
Weight of mixing system MA07-D/MA07-E	790 kg
Weight of mixing tank, empty	1,300 kg
Weight of mixing system + mixing tanks, full MA 07-E	10,090 kg
Power generator, at least (upon consultation)/recommended ¹	45/60 kVA
Engine power of mixing pump	18.5 kW
Engine power of transfer pump	5.5 kW

* Depending on model ¹ not included in scope of delivery | All data subject to change

BMS E2P MIXING SYSTEM THE CONVENIENT SOLUTION



The BMS E2P is a permanent Bentonite mixing and storage system for HDD rigs with an integrated high pressure Bentonite pump, supplied exclusively in combination with a complete truck set-up. In addition to the mixing and fresh water tanks, the fixed components include a separate work area and an externally mounted power generator. The truck is set up by BMS, maintenance and service is provided throughout Germany by TRACTO.



Rear view of the fixed superstructure of the BMS E2P mixing plant

VARIANTS

PERMANENT MIXING SYSTEM

- Continuous operation with simultaneous mixing and delivery of the drilling fluid
- 4,000-litre mixing tanks with tank lighting, level indicators and integrated distribution system for optimum circulation of drilling fluid
- 2 freshwater tanks with a capacity of 225 litres each
- Bentonite feed hopper with high performance venturi nozzles
- Transfer pump delivering up to 650 litres per minute to the drill rig
- Externally mounted 36.9kW generator, low noise operation, operated via interface in superstructure
- Work area with storage and separate side access, workbench with bench vice, electrical cabinet and engine control unit

TRAILER BODY

- High quality truck body
- Rear and side access ladders

ADDITIONAL COMPONENTS

- Tool holder, shelves and integrated drawers for drilling accessories
- Diesel pump for refuelling system
- Various sockets (Schuko and CEE)
- LED interior and exterior lighting
- Electric cable winch
- Webasto independent heater for frost protection



TECHNICAL DATA	BMS-E2P
Dimensions L x B x H (box)	7,366 x 2,464 x 2,460 mm
Weight of mixer with case	approx. 6,500 kg
TANKS	
Number of mixing tanks	2 St.
Mixing tank capacity	4,000 l
Number of freshwater tanks	2
Fresh water tank capacity	225 l
MIXING/TRANSFER PUMPS	
Type	Self-priming centrifugal pump
Motor power	7.5 kW
Max. operating pressure	3.5 bar
Max. transfer pump flow rate	1,500 l/min
Sound power level	83 dB(A)
GENERATOR	
type	Underfloor
Engine power	36.9 kW
Displacement	2.48 l
Max. speed	1,500 U/min
Noise level	84 dB(A)

MRU250HE MIXING AND RECYCLING UNIT SYSTEMATIC RECYCLING

Mobile mixing and recycling unit

Only high-quality and perfectly matched mixing and recycling technology guarantees uninterrupted operation and optimum cleaning of the used drilling fluid. The MRU250HE was developed and designed according to these criteria. It combines a high-performance recycling system with a fully-fledged mixing unit for continuous mixing, conveying and processing of the drilling fluid. This mobile system allows drilling fluid to be recycled directly on site, reducing downtime.

Recycling
in detail.

More at



[TRACTO.COM/
RECYCLING](https://tracto.com/recycling)



VARIANTS

MIXING SYSTEM

- Mixing tanks with level indicator and integrated distribution system for optimum circulation of the drilling fluid
- Large Bentonite funnel with powerful Venturi nozzle and integrated dust extraction system
- 2 mixing tanks, each with a tank capacity of 4,000 litres
- Quick and easy cleaning
- Pallet storage area for Bentonite

RECYCLING SYSTEM

- 2 tilt-adjustable shakers for removing coarse solids
- Hydrocyclones for removing the fines
- Collection tank with level indicator for used and pre-cleaned drilling fluid
- Solids chute on the back for screened coarse and fine material

ADDITIONAL COMPONENTS

- Integrated workbench with tool panel
- 500 litre freshwater tank with level indicator
- Feed funnel for adding additives to optimise flushing
- Integrated drawers and storage options for drilling accessories
- Folding steps
- High-pressure cleaner
- Optional pit pump for suctioning the used rinsing fluid from the start or target pit
- Interior and exterior lighting
- Parking heater for frost protection
- Monitoring of shaker loading via cameras (optional)
- Interface to the drilling rig (with GRUNDODRILL ACS130 / JCS130 and ACS300)
- Pallet storage space for accessories (next to bentonite)
- Ergonomic operation thanks to pneumatically driven valve flaps
- Remote control via portable control panel



TECHNICAL DATA

MRU250HE MIXING AND RECYCLING UNIT

WEIGHT AND DIMENSIONS

Weight (Complete vehicle)	approx. 20 t
Dimensions (Complete vehicle)	approx. 12,000 x 2,550 x 3,950 mm

MIXING TECHNOLOGY

Tank capacity	2 x 4,000 litre
Version	PE Tank with filling level monitoring
Max. feed rate transfer pump	700 l/min
Max. pressure transfer pump	3 bar

RECYCLING SYSTEM

Shaker	2 x Double Decker-Shakers
Screen type	FSMB Panel Screen
Screen size	1,050 x 730 x 25 mm
Screen mesh width	60 - 300 API
Screen quantity (total)	8 pcs. (2 pcs. per level)
Inclination adjustment	manual (hydraulic)
Cyclones	4" and 5"
Max. cleaning capacity	250 l/min
Pit pump	Hose pump

POWER UNIT

Engine	Generator
Capacity	45 kVa
Emission standard	Stage V
Installation	Underfloor

STS V-1.5 | STS V-2.0

VACUUM SUCTION BARREL



A suction barrel is the optimal solution for keeping the excavation pit free of drilling mud, sludge or other liquids.

The vacuum suction barrels of the STS VS series from Schmies Metallbau are specially designed for demanding construction site use.

Intelligent details make everyday work easier for the user. One of the distinguishing features of the STS series is that the suction hoses do not have to be dismantled for travel and are secured in a holder on the side. Easy handling and fast, safe operation are ensured by the 360° free-rotating suction hose boom.

VARIANTS

EQUIPMENT

- Continuously welded V-drawbar for maximum stability
- Sturdy mudguards with metal lamp housing
- Identical track width to passenger car and Sprinter ensures optimum driving and helps prevent lurching
- Lowest possible centre of gravity of the suction barrel
- Suction unit tilted for better cleaning
- Flushing opening to remove impurities or blockages without opening the container lid
- Stainless steel level indicator with colour scale
- 2 safety levels as standard to prevent damage to the compressor
 - Syphon separator
 - Overflow valve with 2 balls and sight glass
- Pressure gauge on oversuction set
- Protective bracket to protect pressure gauge and oversuction set
- Holders for quick attachment of the suction hoses by means of a rubber strap
- Suction hose and suction lance do not have to be disconnected from the suction connection after finishing work
- Enclosure of the drive unit made of aluminium to avoid dirt in the engine unit (powder coating as standard in desired colour)
- Storage facility for tools and accessories between engine housing and suction barrel
- Petrol industrial engine B&S Vanguard 13 hp equipped with oil sensor and fuel tank as well as electric start
- Low-maintenance V-belt drive for engine-compressor unit: Vacuum compressor MEC 3000 with 3,500 litres air performance
- All engine components and accessories housed in lockable engine box

APPLICATION EXAMPLES



SUCTION OF VERY SANDY DRILLING MUDS (BENTONITE)

SUCTION OF LIQUIDS WITH SOLIDS

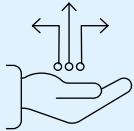
CLEANING AND EMPTYING OF SEWERS, MANHOLES AND PITS

ABSORBING ALKALIS, EMULSIONS AND WASTE WATER

TECHNICAL DATA	STS V-1.5	STS V-2.0	STS V-2.0 with suction arm 360° rotatable for easy intake of liquids	STS V-2.0 with rear tipper tiltable up to 60°
Length (mm)	4,850	4,850	4,850	4,850
Width (mm)	1,850	1,850	1,850	1,850
Height (mm)	1,850	2,050	2,330	2,150
Unladen weight (kg)	1,100	1,200	1,290	1,330
Tank capacity (l)	1,500	2,000	2,000	2,000
Low loader Tandem chassis (t)	2.8	3.5	3.5	3.5

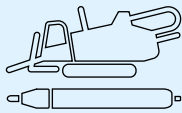
FULL SERVICE FOR TRENCHLESS TECHNOLOGY

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.



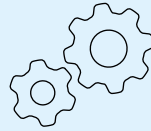
Financing

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.



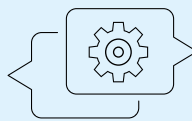
Geoservice

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.



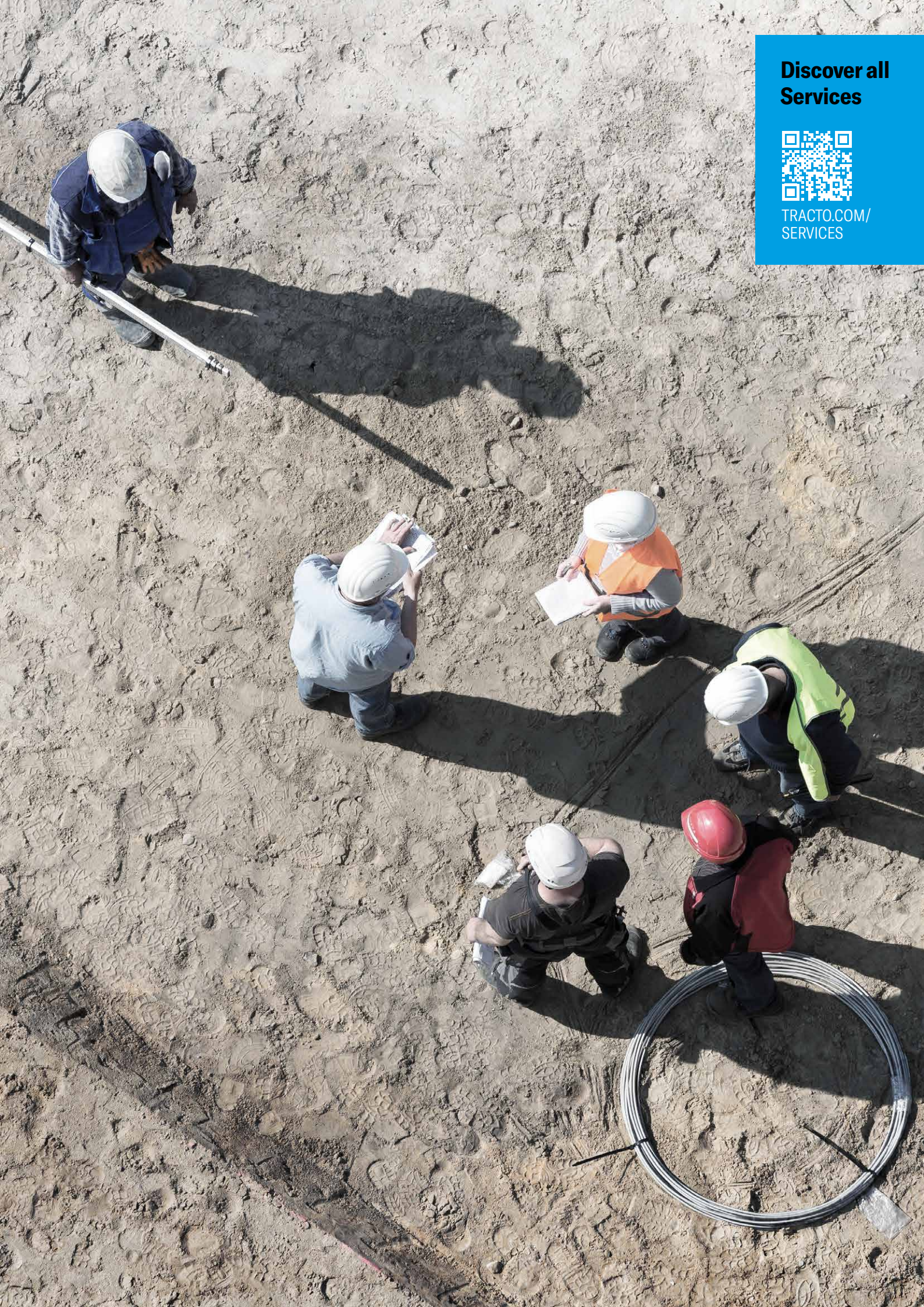
Used Equipment

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 all
Services**



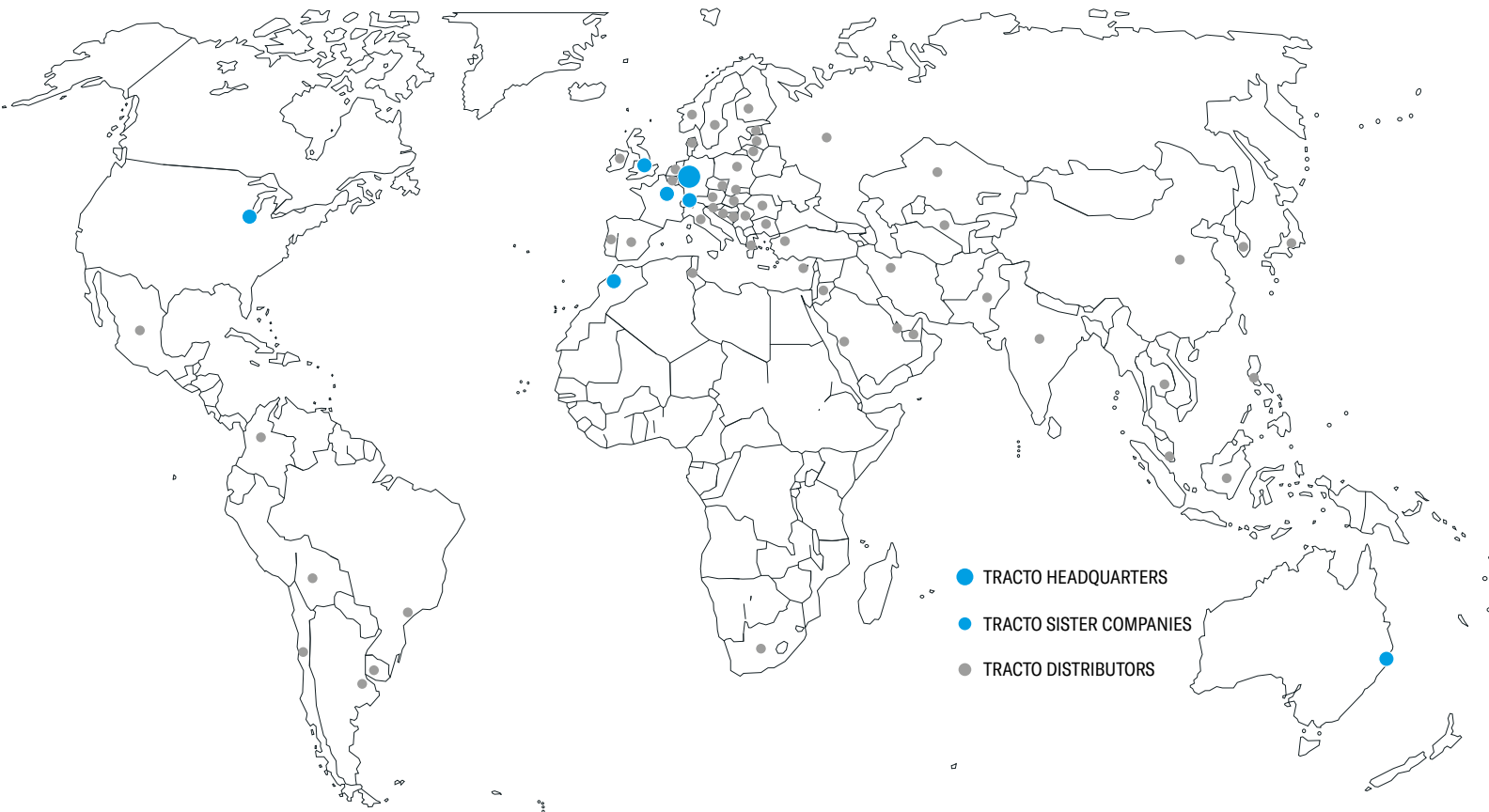
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