

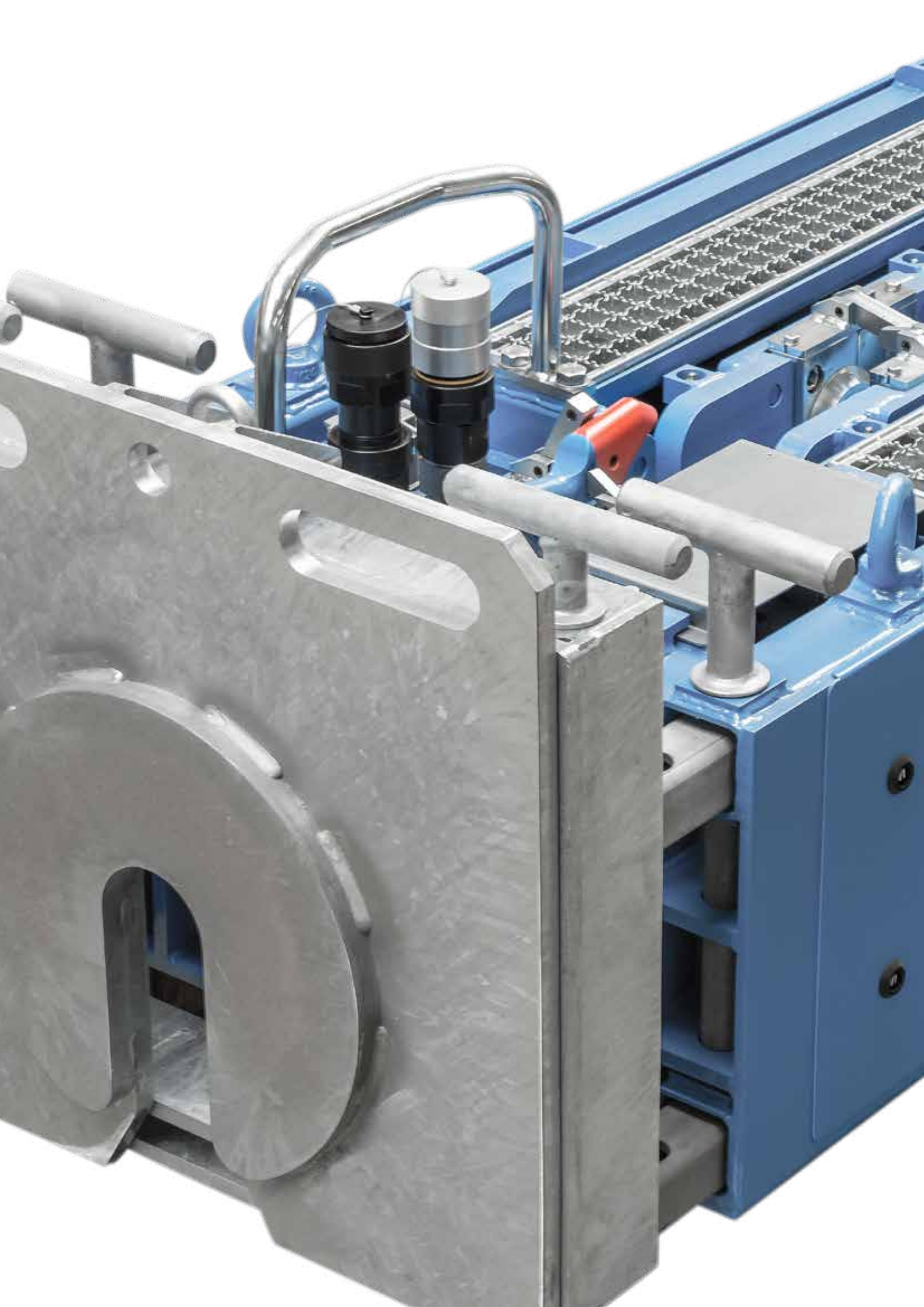
GRUNDOBURST

# THE RENAVATOR



STATIC PIPE BURSTING SYSTEMS





# GRUNDOBURST MACHINES FOR PIPE RENEWAL

GRUNDOBURST systems are perfectly suited for pipe renewal using the static pipe bursting method. With the powerful and robust pulling rigs, damaged pipes up to Ø 1200 mm (circular and oval profiles) can be renewed underground. For 30 years, pipe bursting has been an internationally recognised and sustainable method for the renewal of old pressure lines and free-flow pipes during (clay, B, PVC, PE, GG, GGG, AZ, GRP, steel etc.) which are replaced with new pipes (PE, PP, clay, GGG, GRP, steel, PVC etc.) of the equal, smaller or larger diameter.

## ADVANTAGES

- Can be used for almost all types of damage and old pipe materials
- Long service life of new pipes from 80–100 years
- Upsizing of pipe capacity by 1–2 nominal sizes possible
- QuickLock: Simple and safe rod connection – latch instead of threaded connection; even slight bends are possible
- Short assembly and setup times
- Renewal of existing routes
- Big saving in cost compared with open trench methods
- Very little impact on traffic and environment
- No subsequent costs due to ground settlement, groundwater interference and road damage after pipe bursting
- Safe application according to latest rules and standards

# GRUNDOBURST

## THE BEST THING FOR PIPE RENEWAL



Positive introduction of force - very simple mechanism, barely any wear, maximum safety



### Pulling force measurement GRUNDOLOG

- Monitoring and logging of pulling force imparted on new pipe during installation
- Performance categories: 150kN, 400kN, 1250kN, 2500kN
- Self-sufficient storage and live transfer of data possible

### QuickLock burst rods

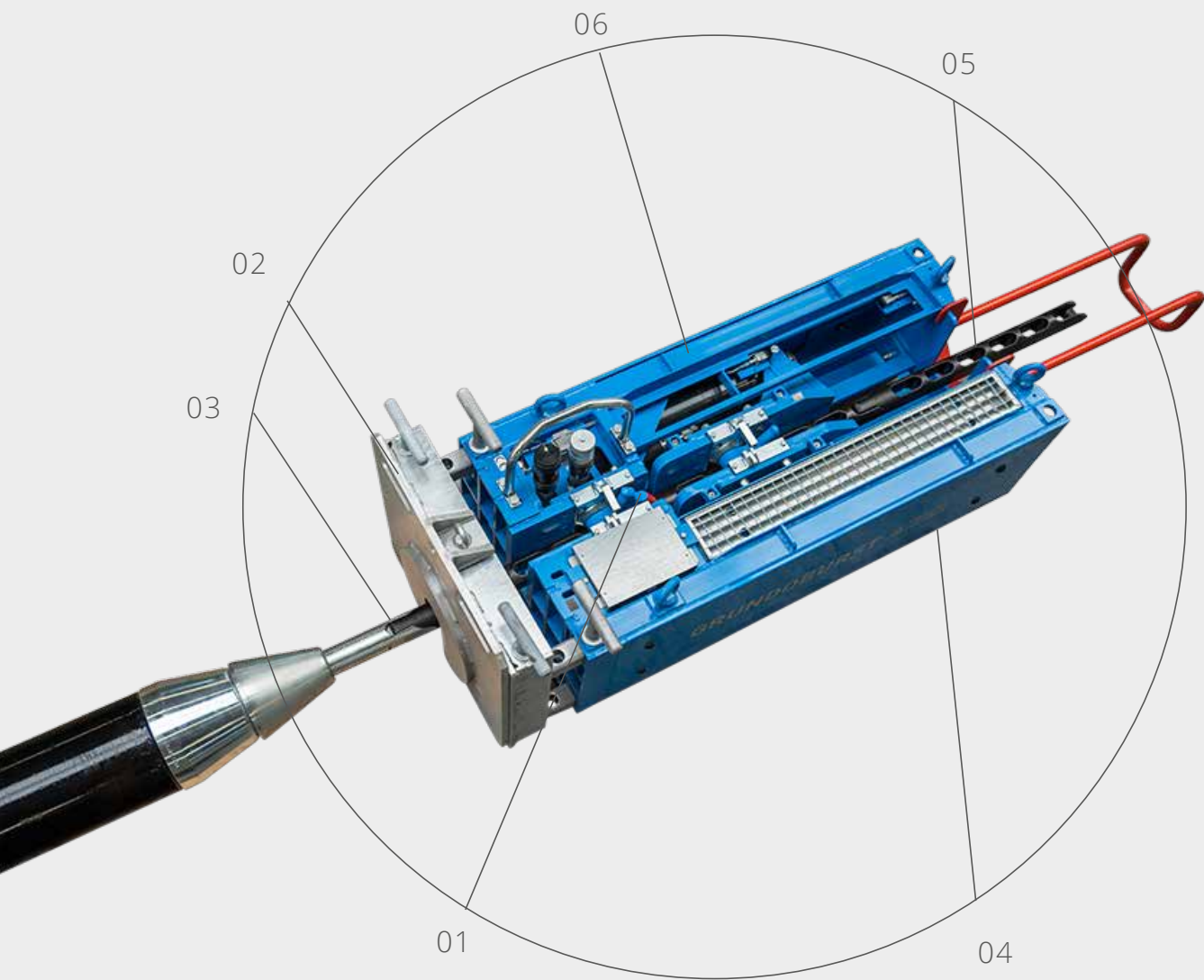
- Quick locking couplings without thread (QuickLock), no lubrication required, therefore no time consuming screwing together required
- Quick rod insertion and removal
- The rods are connected faster than threaded rods
- Absolutely push and pull resistant
- Able to negotiate bends
- Integral production, therefore highly resistant to stress
- Robust, low-wear as clamping is not required
- No slipping back of the rods, due to direct force transmission
- Rod system with convenient rod accessories
- Longer service life than screwed rods



QuickLock bursting rods are available from 35 mm diameter for pipes from ND 50.  
Other rod diameters: 54 mm, 75 mm, 100 mm, 120 mm and 140 mm







- 01 Two latch fingers – low wear, 100% transmission of force, optimum rod attachment
- 02 Integrated, telescopic add-on frame – flexible adaptation to available space, low setup times, simple recovery of accessories
- 03 Comprehensive accessories for practically all old and new pipe materials as well as for short and long pipes – broad application range, cost effective use

- 04 Very simple, robust frame design - resistant, durable, economical
- 05 Rods are resistant to dirt – low maintenance effort, low wear
- 06 Optimum power to weight ratio – only small transport and lifting equipment required



# IMPRESSIVE VERSATILITY

## PRODUCTS OF THE GRUNDOBURST SERIES

- Compact dimensions for small pits
- Can be applied from a pit in both directions
- Fast operating cycles and high output
- Rapid rod pushing through old pipe and during new pipe installation
- Quick to get started
- All machine models have remote control
- Low weight for easy transport
- Accessories specific to the procedure
- Stable and job-site specific construction to withstand the highest of loads and strain
- Long service life and low maintenance effort
- Ergonomic operation and high level of work safety
- CE-certified



GRUNDOBURST 400G



GRUNDOBURST 400S



GRUNDOBURST 800G



GRUNDOBURST 1250G

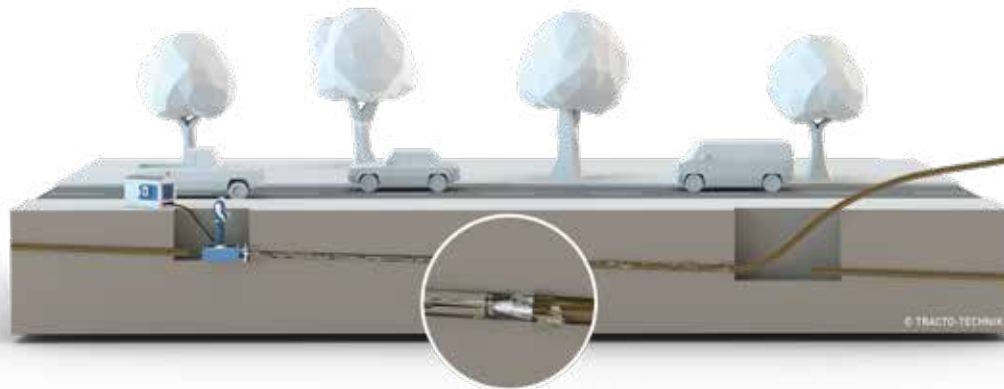


GRUNDOBURST 1900G



GRUNDOBURST 2500G

# MANY POSSIBILITIES JUST ONE MACHINE

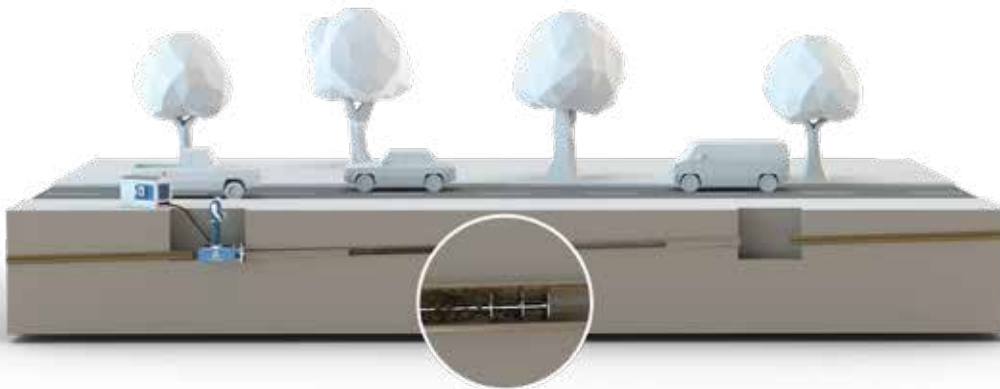


## PIPE BURSTING – PULLING IN A NEW PIPE OF THE SAME SIZE OR LARGER

Trenchless renewal in the existing pipe route. Installation of the new line with identical or larger nominal diameters.

Application: water and gas pressure pipes and gravity gradient lines, nominal diameters ND 50 to ND 1,200, mains replacement lengths up to 300 m.

Types of damages: burst pipes, encrustation, drain blockage, substandard installation of sewage pipes, positional displacement (misalignment, gaps in the sleeve), cracks, leakage, mechanical wear



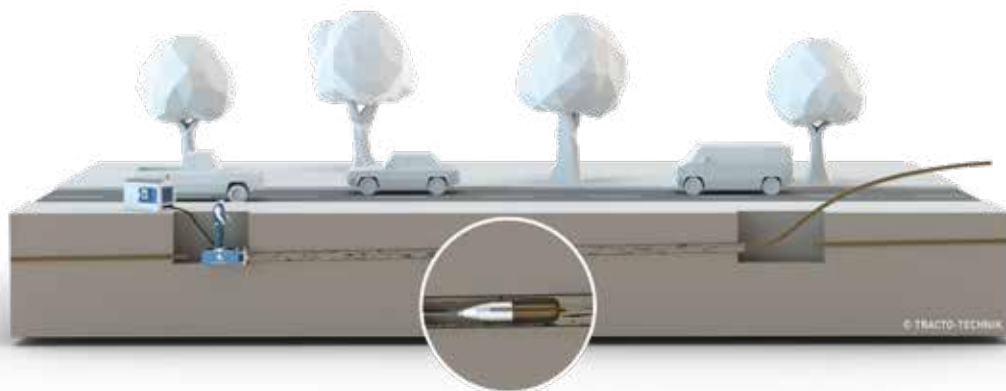
## PIPE RELINING – SLIGHT REDUCTION OF THE PIPE'S CROSS SECTION

With smaller dimensioned long and short pipes for encrusted old pipes; cleaning equipment can be carried along with the Quicklock rods while the pipe is being pulled in which loosens encrustation and pushes it out.

Application: pressure / gravity gradient lines with free cross sections in the old pipe

Types of damages: corrosion / encrustation, cracks, leakages, mechanical wear.





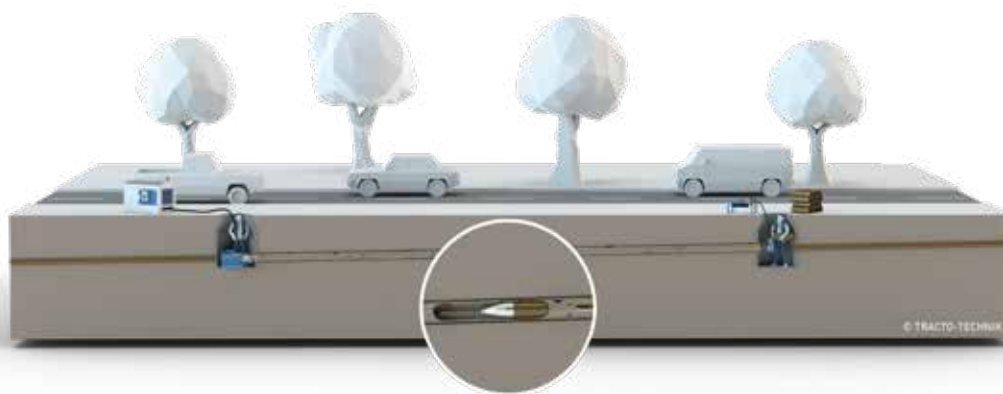
### CALIBRE PIPE BURSTING – DAMAGED PIPE SECTIONS ARE STATICALLY EXPANDED

Partially damaged pipe sections are expanded statically with GRUNDOBURST, a new pipe is pulled in at the same time, creating an annulus which is usually grouted.

Application: pressure pipes and gravity gradient lines with free cross sections caused by collapse in the old pipe (drill free beforehand).

A slight cross-section reduction is possible.

Types of damages: local deformation, cracks, displacement, burst pipes.

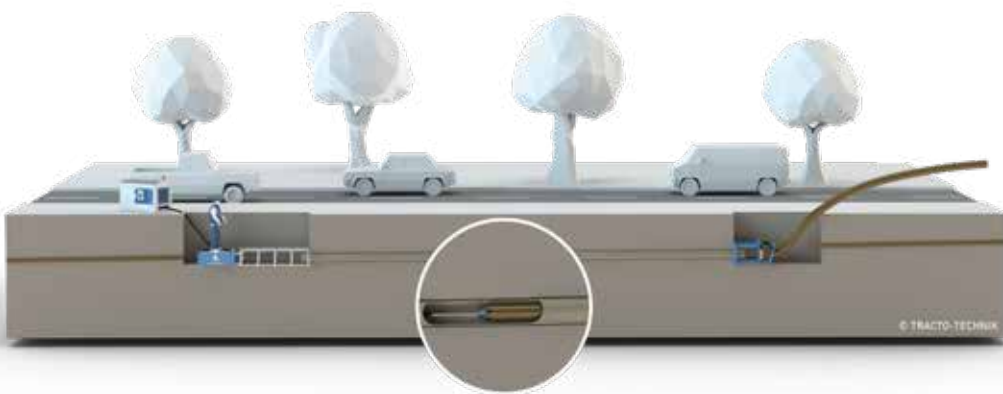


### TIP METHOD (TIGHT-IN-PIPE) – THE NEW PIPE FITS CLOSELY TO THE INTERNAL WALL OF THE OLD PIPE

The TIP method is a method for re-lining concrete and vitrified clay pipes with single pipes (short pipe) or pipe strings (long pipe). Mainly a new pipe made of polypropylene (PP-HM) is installed to fit closely inside the old pipe (tight-in-pipe). The tiny annulus needs no grouting.

Application: renovation of sewer lines made of asbestos cement, concrete and vitrified clay.

Types of damages: burst pipes, deformation up to 20 %, misalignment up to 10 % of the cross section, corrosion, drainage blockup, cracks and leaks, mechanical wear, encrustation (must be removed beforehand).



### REDUCTION METHOD – THE PIPE'S CROSS-SECTION IS TEMPORARILY REDUCED WHILST BEING PULLED IN

The reduction method is a re-lining technique for which the outer diameter of the long PE pipe is mechanically reduced. As soon as it is pulled in, the reduced PE pipe string elongates inside the old pipe covering the wall in a close fit.

Application: rehabilitation of circular crosssections from ND 100 to app. ND 1,200 for gas, water and sewage.

Types of damages: corrosion, cracks, leakage, mechanical wear, encrustation, (to be removed beforehand).



# GRUNDOBURST ACCESSORIES

## ROLLER BLADE

Roller cutter for cutting open old lines from ND 50 to ND 1000 mm



Roller blade Ø 100 mm



Roller cutter body with cutter strip Ø 1000 mm

## CALIBRATED BURST HEADS



For bursting armoured concrete pipes.

## HOOK KNIFE



Hook knife for cutting old PE/PP pipes.

## UPSIZING WITH AND WITHOUT CUTTER STRIPS



For bursting and upsizing old and brittle pipe materials.



### PULLING FORCE MEASUREMENT WITH GRUNDOLOG

Product pipes must not be overstrained and the permissible tensile forces during pipe installations have to be taken into consideration. According to standards, the pulling forces affecting the new pipe shall be measured and recorded continuously. The measurements are performed with the GRUNDOLOG which works with modern DMS measuring technology and a large data storage



### BURSTFIX

BURSTFIX with 200 kN, 400 kN or 800 kN tensioning power for tight-fitting connections when pulling in short pipes from ND 200 to ND 1200

Pulling in short pipes made of PP, PE, PVC, concrete, VCP, GFRP etc

### HYDRAULIC UNITS



BURSTFIX 400 in use.



BURSTFIX 200 inside the manhole

**Hydraulic units for high power, reliable drive** available for any machine



## GRUNDOBURST 400G

PIT

- For pressure and sewer lines ND 1.97 - 9.84 inch-es up to approx. 328 ft lengths (procedural)
- Compact dimensions for small pits
- Rapid work cycles and high performance
- Fast rod pushing in the old pipe and pulling in of the new pipe
- Light weight for simple transportation
- Can be applied in both directions  
- from a single pit
- Simple installation and rapid machine start
- One-man operation with remote control
- Accessories for specific methods

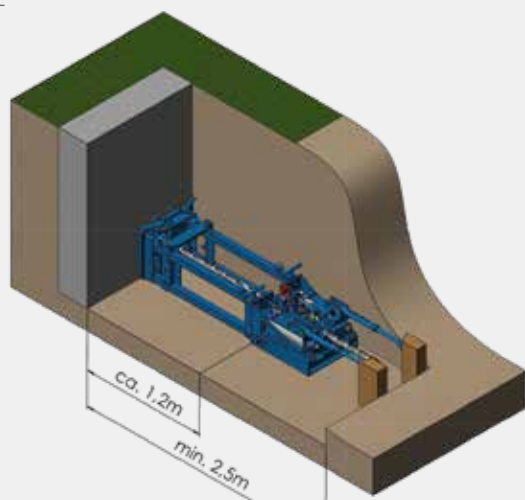
PERFORMANCE DATA	GRUNDOBURST 400G
Dimensions of rig LxWxH [mm]:	55.91 x 22.05 x 20.47
Weigh of rig [kg]:	1,234.59
Thrust [kN]:	61,822.48
Pulling force at 250 bar [kN]:	89,923.60
Pit size LxW [mm]:	129.92 x 43.31
Axle height [mm]:	9.06
Recommended hydraulic station:	TT-B110 or TT-B20
Drive output [kW]:	73.89 at 2.300 rpm., 32.72 at 3.000 rpm
Hydr. operating pressure [bar]:	3,625.95
Old pipe Ø [mm]:	ND 1.97 - ND 9.84
For pipe materials:	VCP, PVC, PE, grey / ductile cast iron, AC, GFRP, steel
New pipe Ø [mm]:	up to OD 11.02
For pipe materials:	PE, PP, VCP, ductile cast iron, GFRP, steel
Bursting rod Ø [mm]:	2.13 (standard) or 1.38, max. 44,961.80 lbf.
Bursting rod weight [kg]:	16.53
Effective bursting rod length [mm]:	27.56





## GRUNDOBURST 400S

PIT



- For pressure and sewer lines ND 1.97 - 9.84 inches up to app. 328 ft length (procedural)
- for installation in manholes  $\geq$  ND 1000 and in small pits
- Pulling rig length only 23.62 inches
- Effective rod length in the manhole: 18.05 inches
- Relatively simple operation in the manhole
- No excavation when working from manhole to manhole
- All-round working safety

## PERFORMANCE DATA

## GRUNDOBURST 400S

Dimensions of rig LxWxH [mm]:	23.62 x 19.29 x 13.39
Weigh of rig [kg]:	440.92
Thrust [kN]:	61,822.48
Pulling force at 250 bar [kN]:	89,923.60
Pit size LxW [mm]:	98.43 x 43.31, manhole min. $\varnothing$ 39.37
Axle height [mm]:	Pit: 8.66   manhole: 5.51
Recommended hydraulic station:	TT-B110 or TT-B20
Drive output [kW]:	73.89 at 2,300 rpm, 32.72 at 3,000 rpm
Hydr. operating pressure [bar]:	3,625.95
Old pipe $\varnothing$ [mm]:	ND 1.97 - ND 9.84
For pipe materials:	VCP, PVC, PE, grey / ductile cast iron, AC, GFRP, steel
New pipe $\varnothing$ [mm]:	up to OD 11.02
For pipe materials:	PE, PP, VCP, ductile cast iron, GFRP, steel
Bursting rod $\varnothing$ [mm]:	2.13 (standard) or 1.38, max. 44,961.80 lbf.
Bursting rod weight [kg]:	11.02
Effective bursting rod length [mm]:	18.50





## GRUNDOBURST 800G

PIT

- For pressure and sewer lines ND 3.14 - 15.75 inches up to approx. 328 ft (procedural)
- Compact dimensions for small pits
- Rapid work cycles and high performance
- Fast rod pushing into the old pipe and pulling in of the new pipe
- Can be applied in both directions
  - from a single pit
- Rapid machine start
- One-man operation with remote control
- Accessories for specific methods

### PERFORMANCE DATA

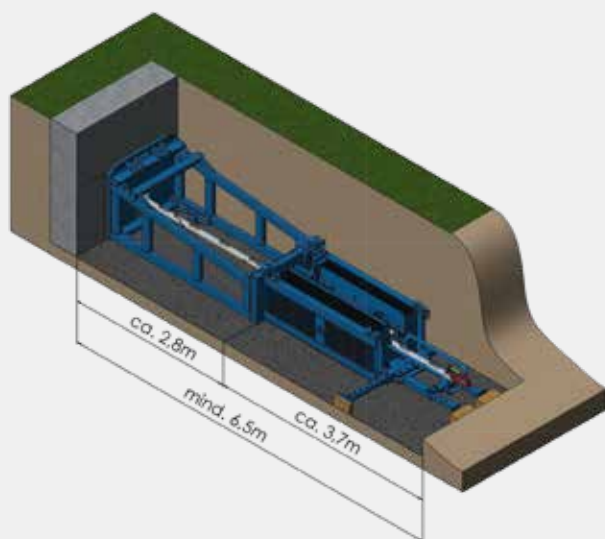
### GRUNDOBURST 800G

Dimensions of rig LxWxH [mm]:	66.93 x 28.35 x 26.38
Weigh of rig [kg]:	3,196.70
Thrust [kN]:	57,551.10
Pulling force at 250 bar [kN]:	172,878.12
Pit size LxW [mm]:	177.17 x 59.06
Axle height [mm]:	9.84
Recommended hydraulic station:	TT-B110
Drive output [kW]:	73.89 at 2,300 rpm
Hydr. operating pressure [bar]:	3,625.95
Old pipe Ø [mm]:	ND 3.15 - ND 15.75
For pipe materials:	VCP, PVC, PE, grey / ductile cast iron, AC, GFRP, steel
New pipe Ø [mm]:	up to OD 15.75
For pipe materials:	PE, PP, VCP, ductile cast iron, GFRP, steel
Bursting rod Ø [mm]:	2.95 (standard) or 2.13 max. 89,923.60 lbf.
Bursting rod weight [kg]:	28.66
Effective bursting rod length [mm]:	29.53



## GRUNDOBURST 1250G

PIT



- From GRUNDOBURST1250G upwards a new power class begins. The GRUNDOBURST1250G generates a max. pulling force of 285,956.92 lbf (127.2 t). Depending on the method, it can renew damaged pipes from ND 5.90 to 23.62 inches in lengths of 984.25 ft up to approx.  $\leq$  3,280.84 ft can be pulled in if relining is applied. Furthermore, greater installation depths demand extreme pulling forces for displacing the soil. To meet these needs, the rods are manufactured with lengths of 66.93 inches they weigh 187.39 lbs each. Inserting and breaking away the rods is performed with a hoist from rig type 1250G upwards.

## PERFORMANCE DATA

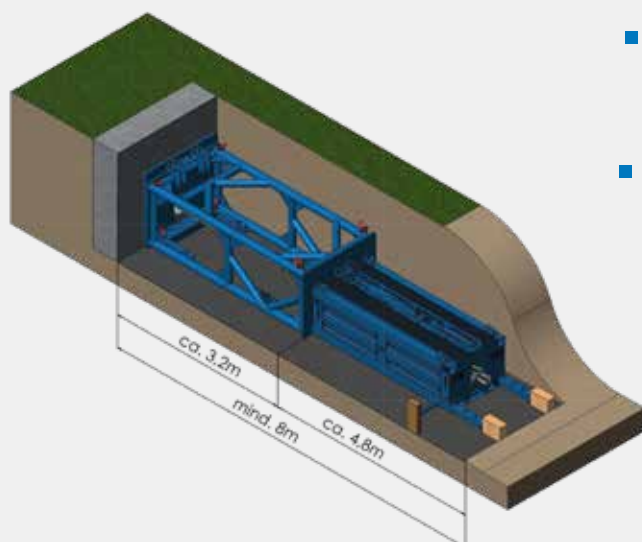
## GRUNDOBURST 1250G

Dimensions of rig LxWxH [mm]:	90.55 x 43.31 x 34.45
Weigh of rig [kg]:	6,883.34
Thrust [kN]:	88,799.52
Pulling force at 250 bar [kN]:	285,956.92
Pit size LxW [mm]:	255.91 x 66.93
Axle height [mm]:	14.17
Recommended hydraulic station:	TT-B110
Drive output [kW]:	73.89 at 2,300 rpm
Hydr. operating pressure [bar]:	3,625.95
Old pipe Ø [mm]:	ND 5.91 - ND 23.62
For pipe materials:	VCP, PVC, PE, grey/ductile cast iron, AC, GFRP, steel
New pipe Ø [mm]:	up to OD 24.80
For pipe materials:	PE, PP, VCP, lead, ductile cast iron, GFRP, steel
Bursting rod Ø [mm]:	3.94
Bursting rod weight [kg]:	187.39
Effective bursting rod length [mm]:	66.93



## GRUNDOBURST 1900G

PIT



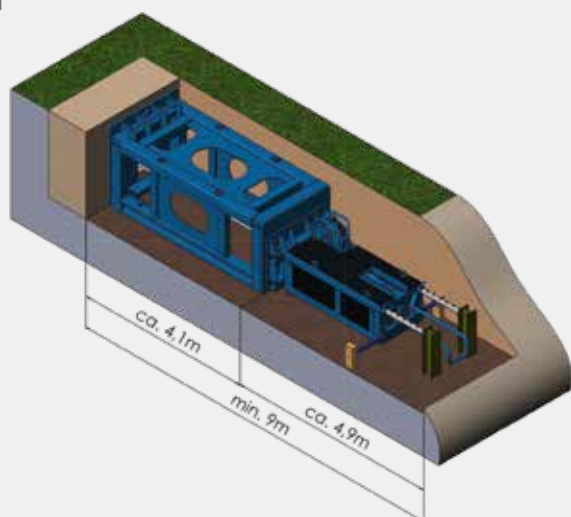
- The GRUNDOBURST 1900G generates a max. pulling force of 427,136.91 lbf (190 t). This allows renewal of defective pipes from ND 9.84 to 31.50 inches lengths of 984.25 ft max.
- The rods are 88.58 inches long and weigh 363.76 lbs each, the permissible bending radius is only 180.45 ft.

PERFORMANCE DATA	GRUNDOBURST 1900G
Dimensions of rig LxWxH [mm]:	112.20 x 45.28 x 39.37
Weigh of rig [kg]:	7,319.34
Thrust [kN]:	160,963.17
Pulling force at 250 bar [kN]:	427,136.91
Pit size LxW [mm]:	314.96 x 78.74
Axle height [mm]:	15.75
Recommended hydraulic station:	TT-B110
Drive output [kW]:	73.89 at 2,300 rpm, 170.31 at 2,000 rpm
Hydr. operating pressure [bar]:	3,625.95
Old pipe Ø [mm]:	ND 9.84 - ND 31.50
For pipe materials:	VCP, lead, PVC, PE, grey/ductile cast iron, AC, GFRP, steel
New pipe Ø [mm]:	up to OD 35.43
For pipe materials:	PE, PP, VCP, ductile cast iron, GFRP, steel
Bursting rod Ø [mm]:	4.72
Bursting rod weight [kg]:	363.76
Effective bursting rod length [mm]:	88.58



## GRUNDOBURST 2500G

PIT



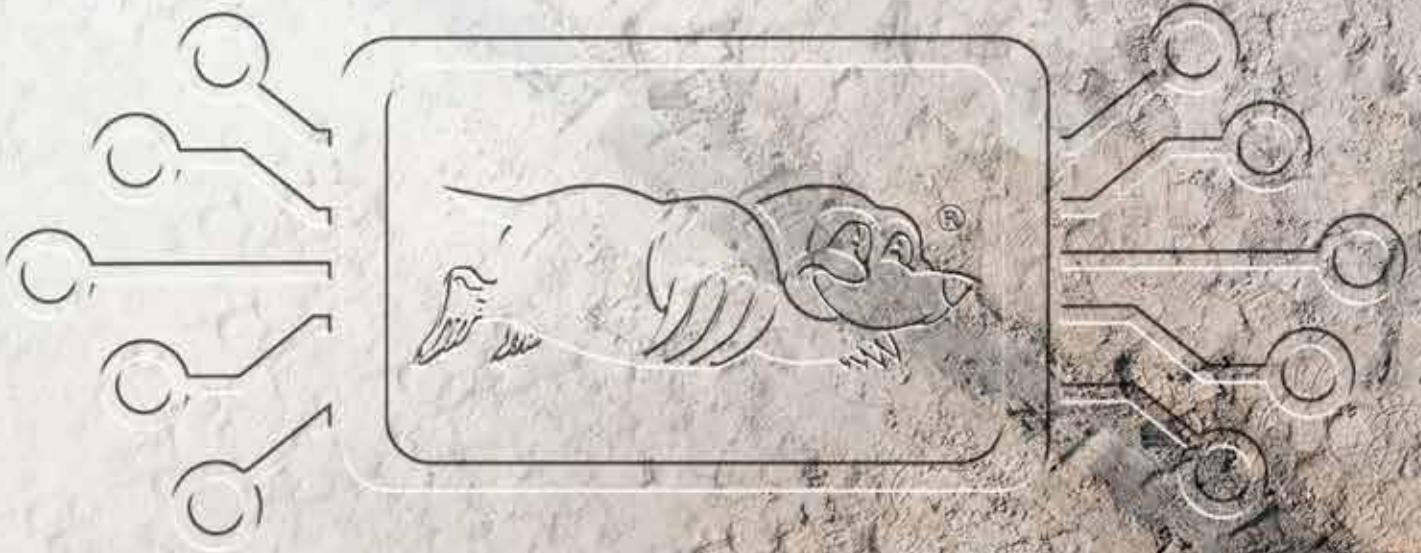
- The GRUNDOBURST2500G sets the benchmark for trenchless pipe renewal. It generates a maximum pulling force of 573,262.70 lbf (255 t). This allows the renewal of old pipes from ND 11.81 to ND 47.24 inches
- The rods are 86.61 inches long and weigh 462.97 lbf each. For steel pipe relining projects, mains lengths up to 4,199.46 ft can be pulled in.

## PERFORMANCE DATA

## GRUNDOBURST 2500G

Dimensions of rig LxWxH [mm]:	116.14 x 62.99 x 59.06
Weigh of rig [kg]:	9,038.94
Thrust [kN]:	237,173.39
Pulling force at 250 bar [kN]:	573,262.70
Pit size LxW [mm]:	354.33 x 98.43
Axle height [mm]:	19.69
Recommended hydraulic station:	TT-B250
Drive output [kW]:	170.31 at 2,000 rpm
Hydr. operating pressure [bar]:	3,625.95
Old pipe Ø [mm]:	ND 11.81 - ND 47.24
For pipe materials:	VCP, lead, PVC, PE, grey/ductile cast iron, AC, GFRP, steel
New pipe Ø [mm]:	up to OD 47.24
For pipe materials:	PE, PP, VCP, ductile cast iron, GFRP, steel
Bursting rod Ø [mm]:	5.51
Bursting rod weight [kg]:	462.97
Effective bursting rod length [mm]:	86.61





## SERVICES ALL AROUND TRENCHLESS TECHNOLOGY INTELLIGENT SOLUTIONS WITH ADDED VALUE

Be it before the purchase or after, in person or online – we are always at hand with help and advice for you. We 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](http://www.TRACTO-TECHNIK.com/Services)

### DIGITAL SOLUTIONS

On our website, you can find all of the main 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 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, invoicing, documentation and service in a central way. With the **Cockpit**, you always have all key machine data in view irrespective of place and time. With the **QuickPath**, you can plan the shortest and safest bore path in next to no time. That way, you can apply the analogue machine technology even more efficiently and profitably, simply via PC, smartphone or tablet.

### FINANCE & GUARANTEE

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 or various types of leasing; we provide extensive expert advice in order to find the tailored solution for you. Discretion goes without saying.





## OGY

### USED MACHINE SERVICE

Also your used machines are 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, we are always there for you, even after the purchase. Alongside the headquarters in Lennestadt, a total of seven TRACTO-TECHNIK 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 make sure that you do not lose any valuable in case of emergency - wherever you may be.

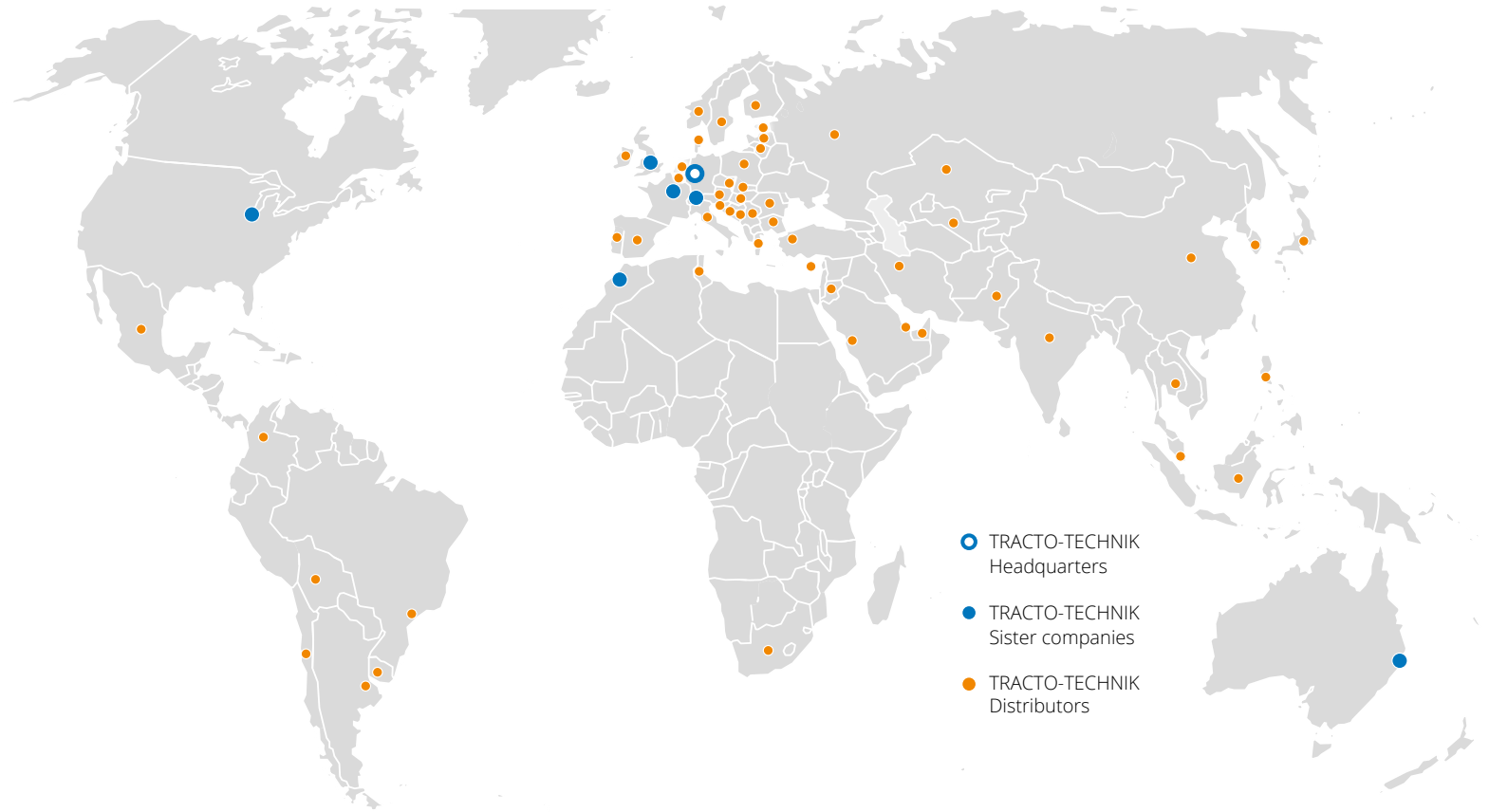
### TRAINING COURSES

Qualified trainings 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 as well as planners and contractors who would like to learn more about the versatile applications of the various NODIG systems. Our tailor-made trainings are held at our company locations or individually at your end by certified trainers. Contents, dates and registration 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 write geological assessments, review construction documents to determine the potential for supplements and draw up corresponding statements.

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