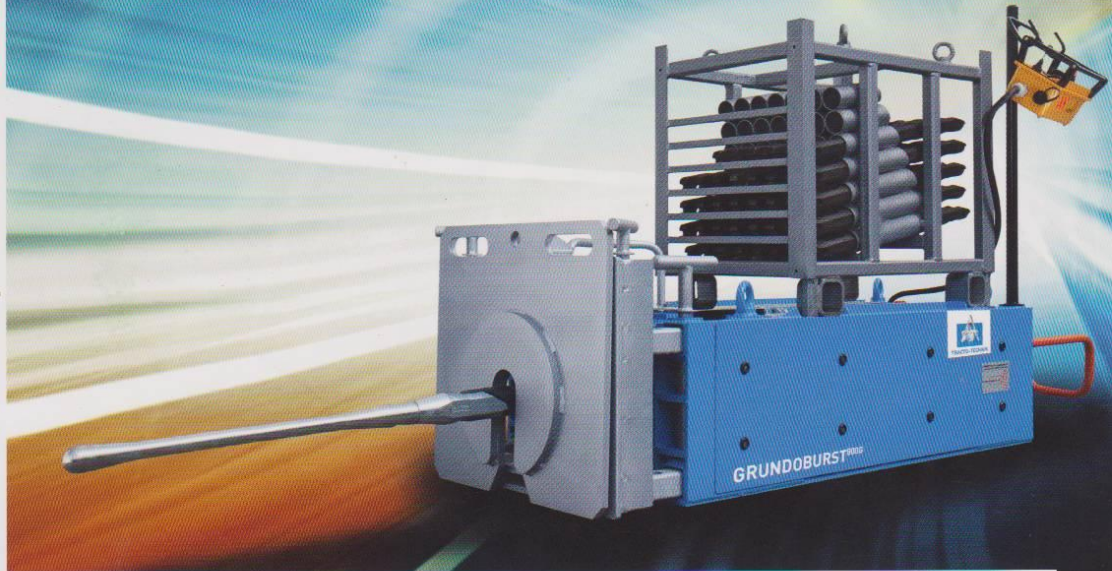


INSPIRING TRENCHLESS TECHNOLOGIES



**SOMETIMES YOU HAVE TO BREAK
THE OLD TO CREATE SOMETHING NEW**

GRUNDOBURST
Static Pipe Bursting Systems





GRUNDOBURST

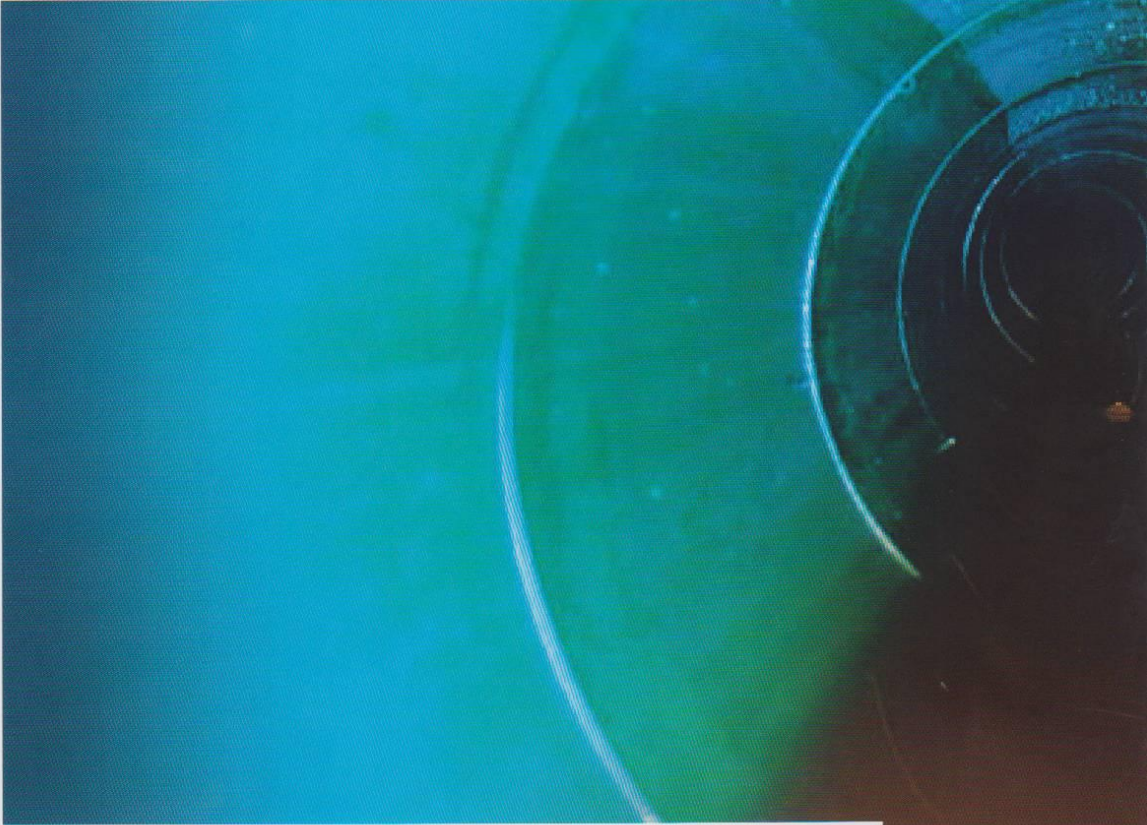
Pipe renewal at its best

GRUNDOBURST rigs are perfect for pipe renewal using the static pipe bursting method. With the powerful and robust pulling rigs, damaged old pipes with diameters up to 1,200 mm (circular and oval profiles) can be renewed without the need for trenches. Pipe bursting is an acknowledged and, most important, sustainable method for renewing pressure and gravity gradient lines; it has been in use all over the world for the past 30 years. Old pipes (VCP, lead, PVC, PE, grey cast iron, ductile iron, AC, GFRP, steel etc.) are replaced by new pipes (PE, PP, VCP, ductile cast iron, GFRP, steel, PVC etc.) with identical, smaller or larger diameters.



THE ADVANTAGES:

- Can be used for almost any types of damage and any kind of old pipe materials
- Long service life for the new pipe, 80 - 100 years
- The old pipe capacity can be scaled up by 1 - 2 nominal sizes
- QuickLock: simple and safe rod connections - engage with a click, no screwing together; even small bend radii can be accessed
- Short installation and set-up times
- Renewal of already existing pipe-line routes
- 40 % cost saving in comparison with open trench methods
- Traffic flow and the environment are hardly affected
- Almost no re-instatement costs due to ground settlement, groundwater interference and road damage after pipe bursting
- Safe application according to latest rules and standards

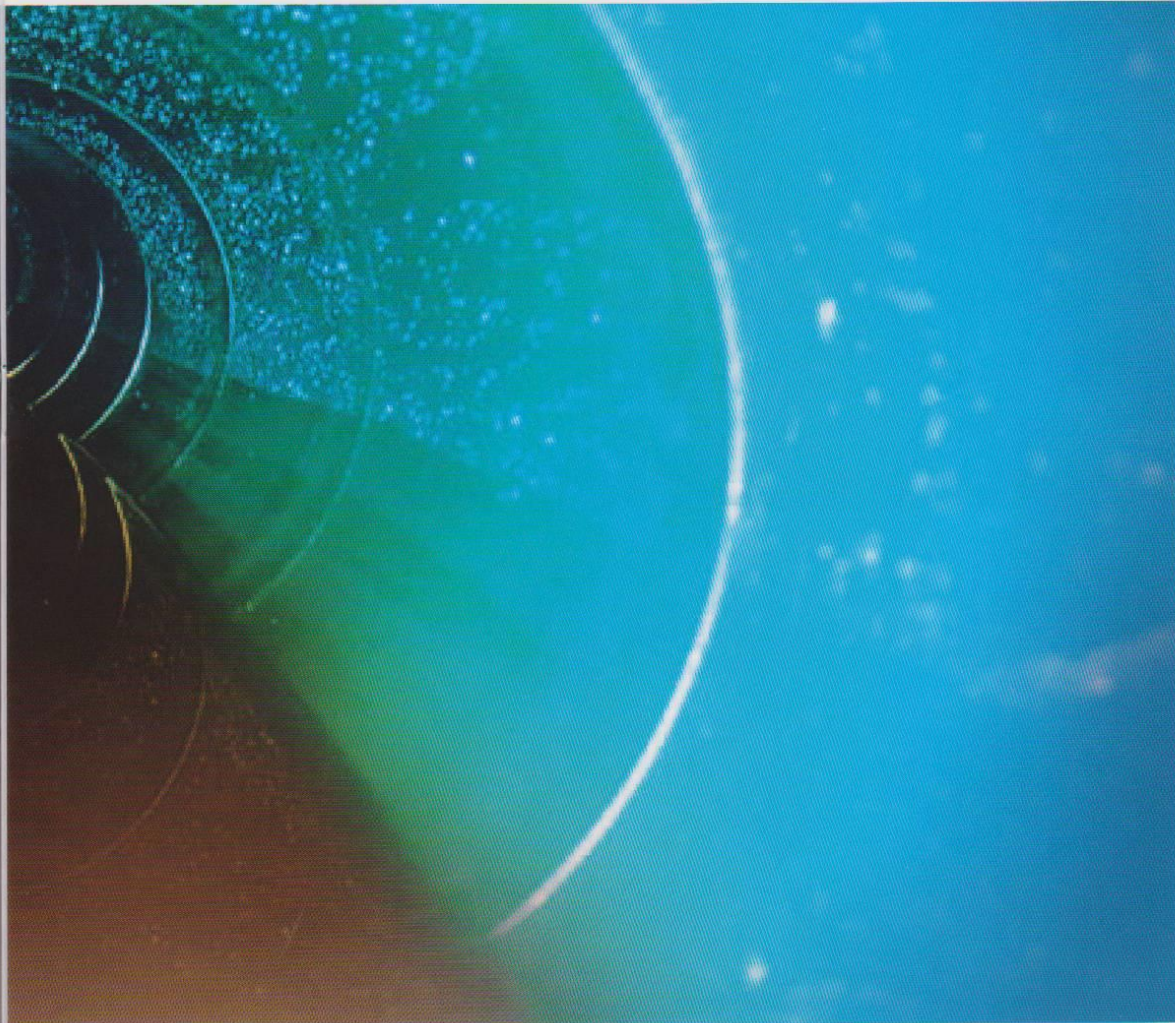


5 METHODS

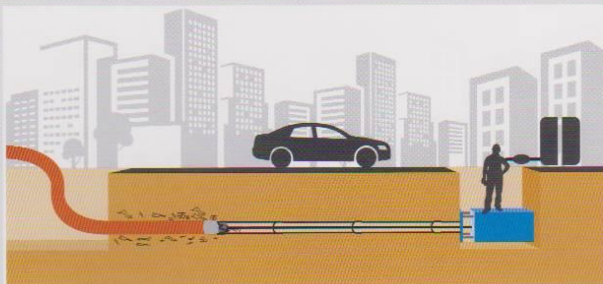
Multifunctional GRUNDOBURST Technique

The methods at a glance

- **Pipe bursting**
pulling in a new pipe of the same size or larger
- **Pipe relining**
slight reduction of the pipe's cross-section
- **Calibre pipe bursting**
damaged pipe sections are statically expanded
- **TIP method (Tight in Pipe)**
the new pipe fits closely to the internal wall of the old pipe
- **Reduction method**
the pipe's cross-section is temporarily reduced whilst being pulled in



Pipe bursting



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

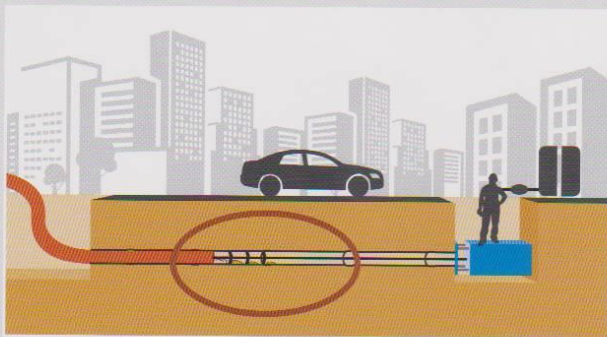
Types of damages: burst pipes, encrustation, drain blockage, substandard installation of sewage pipes, positional displacement (misalignment, gaps in the sleeve), cracks, leakage, mechanical wear

Standards: DWA A125, DWA M143-15, A161, DIN EN 12889, DVGW GW 304, 312, 323, 325, RSV M 8

MANY POSSIBILITIES

only one machine

Pipe relining



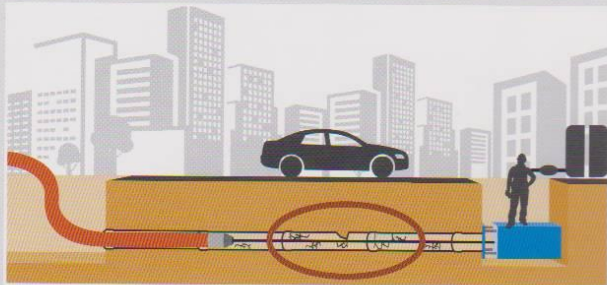
With smaller dimensioned long and short pipes for encrusted old pipes; cleaning equipment can be carried along with the Quicklock rods while the pipe is being pulled in, the equipment loosens encrustation and pushes it out.

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

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

Standards: DVGW GW 320-1, 325, DWA M 143-12,13, ATV-M 127-2, RSV M3, EN 12889

Calibre pipe bursting



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

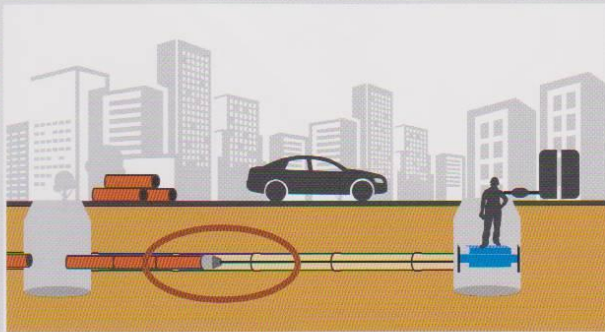
Application pressure pipes and gravity gradient lines with free cross sections caused by collapse in the old pipe (drill free beforehand). A slight cross-section reduction is possible.

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

Standards: DWA M 143-12,13, A161, EN 12889, RSV M8



Renovation with the Tight In Pipe method (TIP)



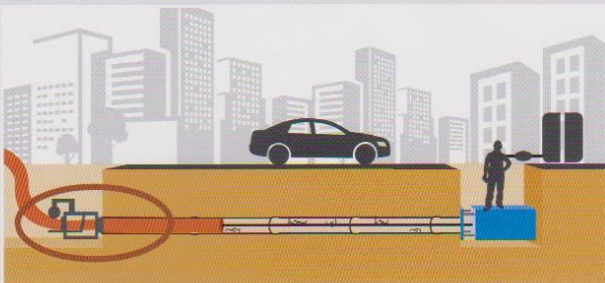
Standards: DWA M 143-12,13, RSV M 2.2, DWA A 127-2

The TIP method is a method for re-lining concrete and vitrified clay pipes with single pipes (short pipe) or pipe strings (long pipe). In the first place, 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 grout after fill.

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 block-up, cracks and leaks, mechanical wear, encrustation (must be removed beforehand).

Reduction Method



Standards: ATV-M 143-11, DVGW GW 320-2, DWA 127 -2, RSV M2

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 and covers the wall in a close fit.

Application: rehabilitation of circular cross-sections from ND 100 to app. ND 1,200 within the domain of gas, water and sewage.

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



TECHNOLOGY AND DIVERSITY

that will inspire you

PRODUCTS FROM THE GRUNDOBURST SERIES

- Compact dimensions for small pits
- Can be applied in both directions - from a single pit
- Rapid working cycles and high performance
- Quick rod thrust and pipe pulling of the new pipe into the old
- Fast machine start
- All machine types have remote control
- Light weight for simple transportation
- Accessories for specific methods
- Stable and job-site specific construction for increased demands
- Long service life and minimal maintenance requirements
- Ergonomic operation and all-round working safety
- CE certification

■ **MADE**
■ **IN**
■ **GERMANY**



EXPERT INSPECTION

Statutory expert equipment inspection



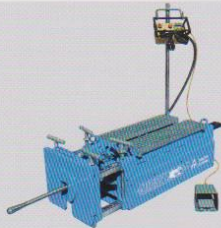
TRAINING

Wide-ranging training and further education courses



INTERNET

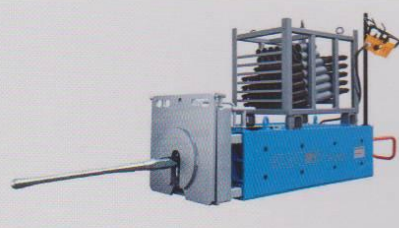
Please visit www.TRACTO-TECHNIK.com



GRUNDOBURST400G



GRUNDOBURST400S



GRUNDOBURST800G



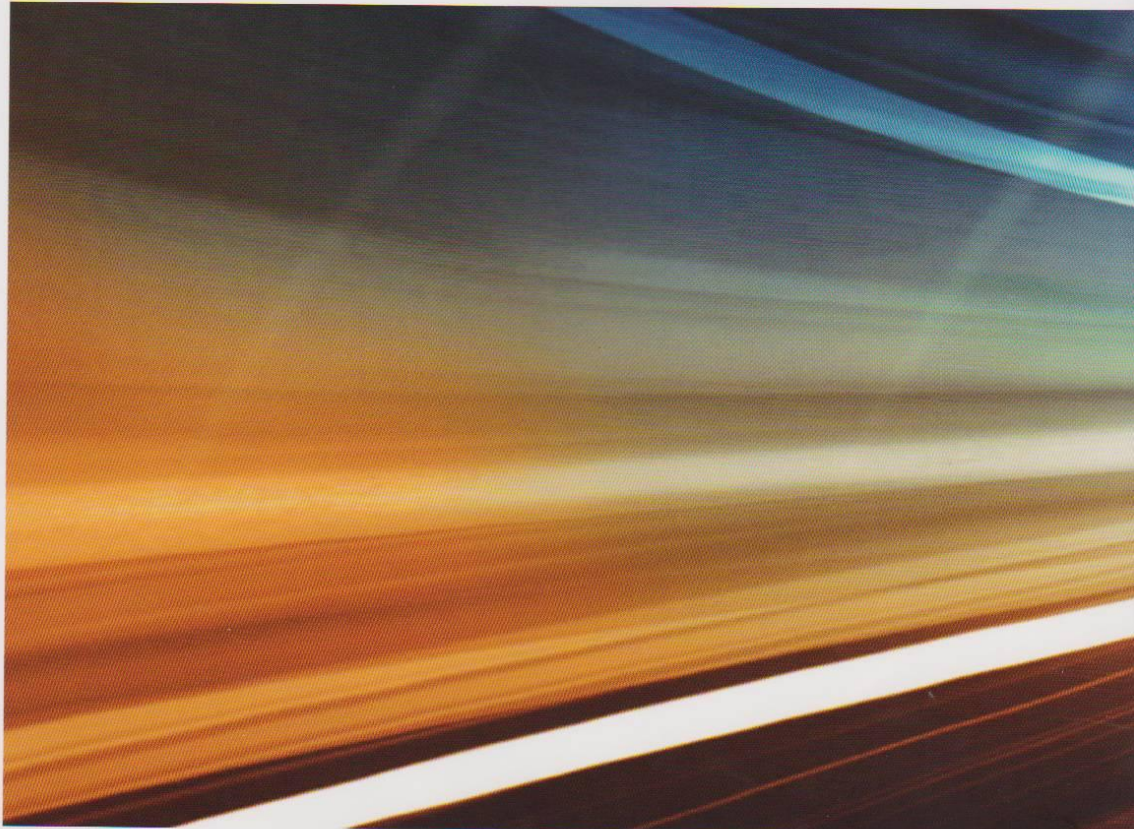
GRUNDOBURST1250G



GRUNDOBURST1900G



GRUNDOBURST2500G



GRUNDOBURST ACCESSORIES

to keep it running

THE PERFECT BURSTING 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 pipe bursting rods are available with 35 mm diameters, suitable for pipes from ND 50 on.
Other rod diameters: 54 mm, 75 mm, 100 mm, 120 mm and 140 mm



Elbow rods



Rod adapter



Expanding connector

GRUNDOBURST ACCESSORIES

to keep it running

ROLLERBLADE

Rollerblade for cutting open old pipe lines from ND 50 to ND 1,000 mm



Rollerblade Ø 100 mm



Rollerblade Ø 1.000 mm

TENSIONING SHORT PIPES

BURSTFIX with 200 kN, 400 kN or 800 kN bracing 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



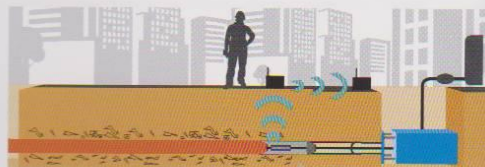
BURSTFIX⁴⁰⁰ in operation



BURSTFIX²⁰⁰ in the manhole

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.





HYDRAULIC POWER UNITS



TTB20 for 400G, 400S

L x W x H: 1,600 x 750 x 1,350 mm
Weight (full tank): 790 kg
Hydraulic oil tank: 100 l
Diesel tank: 60 l
Engine power output: 24.4 kW at 3,000 rpm
Max. hydraulic pressure: 250 bar



TTB110 for 400G, 400S, 800G, 1250G, 1900G

L x W x H: 1,640 x 840 x 1,650 mm
Weight (full tank): 1,400 kg
Hydraulic oil tank: 230 l
Diesel tank: 110 l
Engine power output: 55.1 kW at 2,300 rpm
Max. hydraulic pressure: 250 bar
stepless pressure and litre volume adjustment
via cable controller



TTB250 for 2500G

L x W x H: 2,700 x 1,400 x 2,400 mm
Weight (full tank): 2,600 kg
Hydraulic oil tank: 945 l
Diesel tank: 165 l
Engine power output: 127 kW at 2,000 rpm
Max. hydraulic pressure: 250 bar
stepless pressure and litre volume adjustment
via cable controller



BURSTFORM

Long pipe installation in most confined spaces

Unique device for pulling in long pipes through a manhole applying the TIP method

ADVANTAGES:

- Pulling in PE-100 RC new pipes as a pipe string (long pipe)
- Pipe pulling through a launch manhole from \varnothing 1 m
- Pulling lengths up to 150 m
- The hydraulic capacity of the pipe line may be increased due to reduced friction coefficients when using the PE material
- The property service connections are connected without trenches

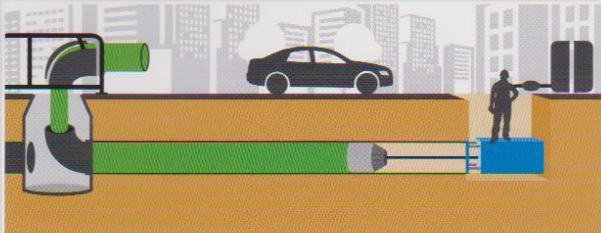


PROCEDURE

The pipes are mechanically deformed and inserted vertically into the old pipe through the manhole. Before reaching the old pipe, the plastic pipe is returned to its original circular shape and pulled in to fit closely inside (Tight In Pipe). The method is suitable for old pipes ND 200, ND 250 and ND 300.



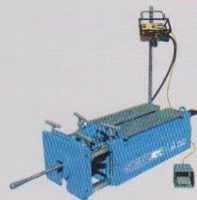
Driving through an intermediate manhole.



The pipe arrives at the target pit.

TECHNICAL DATA

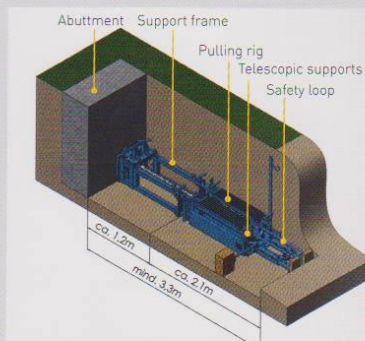
400 - 800 kN



Model

GRUNDOBURST400G

- For pressure and sewer lines ND 50 - ND 250 up to approx. 100 m 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

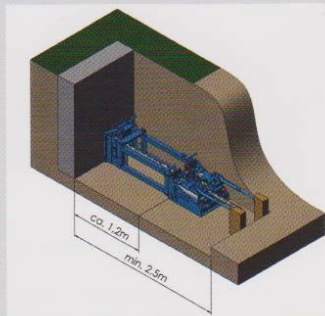
Dimensions pulling rig L x W x H [mm]:
 Weight of the rig [kg]:
 Thrust force [kN]:
 Pulling force at 250 bar [kN]:
 Pit size L x W [mm]:
 Axle height [mm]:
 Recommended hydraulic power unit:
 Drive capacity[kW]:
 Hydr. operating pressure [bar]:
 Old pipe Ø:
 For pipe materials:
 New pipe Ø:
 For pipe materials:
 Bursting rod Ø [mm]:
 Bursting rod weight [kg]:
 Bursting rod effective length [mm]:

1.420 x 560 x 520
 560
 275
 400
 3.300 x 1.100
 230
 TT B110 or TT B20
 55,1 at 2.300 rpm., 24,4 at 3.000 rpm
 250
 ND 50 - ND 250
 VCP, PVC, PE, grey/ductile cast iron, AC, GFRP, steel
 up to OD 280
 PE, PP, VCP, ductile cast iron, GFRP, steel
 54 [standard] or 35, max. 200 kN
 7,5
 700

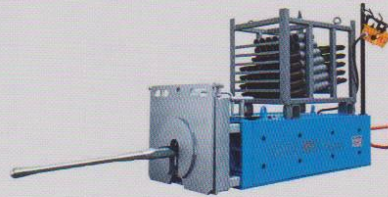


GRUNDOBURST^{400S}

- For pressure and sewer lines ND 50 - ND 250 up to app. 100 m length (procedural)
- Pulling rig length only 60 cm
- Effective rod length in the manhole: 470 mm
- Relatively simple operation in the manhole
- No excavation when working from manhole to manhole
- All-round working safety

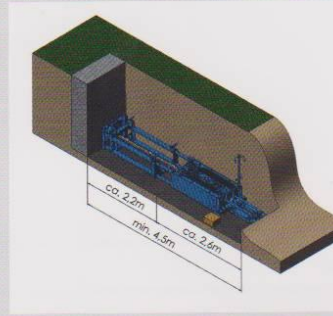


600 x 490 x 340
 200
 275
 400
 2,500 x 1,100, manhole min. Ø 1,000
 pit: 220 | manhole: 140
 TT B110 or TT B20
 55.1 at 2,300 rpm , 24.4 at 3,000 rpm
 250
 ND 50 - ND 250
 VCP, PVC, PE, grey /ductile cast iron, AC, GFRP, steel
 up to OD 280
 PE, PP, VCP, ductile cast iron, GFRP, steel
 54 (standard) or 35, max. 200 kN
 5
 470



GRUNDOBURST^{800G}

- For pressure and sewer lines ND 80 - ND 400 up to approx. 100 m lengths (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



1,700 x 720 x 670
 1,450
 256
 769
 4,500 X 1,500
 250
 TT B110
 55.1 at 2,300 rpm
 250
 ND 80 - ND 400
 VCP, PVC, PE, grey/ductile cast iron, AC, GFRP, steel
 up to OD 400
 PE, PP, VCP, ductile cast iron, GFRP, steel
 75 (standard) or 54 max. 400 kN
 13
 750

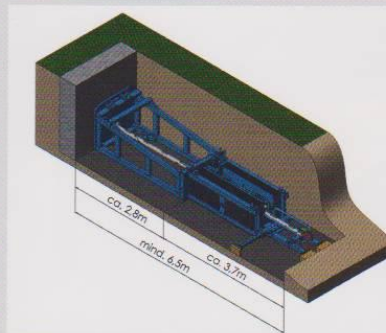
TECHNICAL DATA 1250 - 2500 kN



Model

GRUNDOBURST^{1250G}

- From GRUNDOBURST1250G upwards a new power class begins. The GRUNDOBURST1250G generates a max. pulling force of 1,270 kN (127 t). Depending on the method, it can renew damaged pipes from ND 150 to ND 600 in lengths of 300 m; up to approx. ≤ 1000 m can be pulled in if re-lining 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 1.70 m, they weigh 85 kg each. Inserting and breaking away the rods is performed with a hoist from rig type 1250G upwards.



Performance data

Dimensions pulling rig L x W x H [mm]:	2,300 x 1,100 x 875
Weight of the rig [kg]:	3,120
Thrust force [kN]:	395
Pulling force at 250 bar [kN]:	1,272
Pit size L x W [mm]:	6,500 X 1,700
Axle height [mm]:	360
Recommended hydraulic power unit:	TT B110
Drive capacity[kW]:	55.1 at 2,300 rpm
Hydr. operating pressure [bar]:	250
Old pipe Ø:	ND 150 - ND 600
For pipe materials:	VCP, PVC, PE, grey/ductile cast iron, AC, GFRP, steel
New pipe Ø:	up to OD 630
For pipe materials:	PE, PP, VCP, lead, ductile cast iron, GFRP, steel
Bursting rod Ø [mm]:	100
Bursting rod weight [kg]:	85
Bursting rod effective length [mm]:	1,700



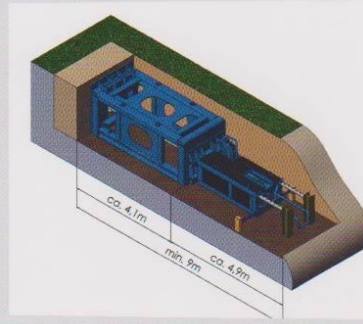
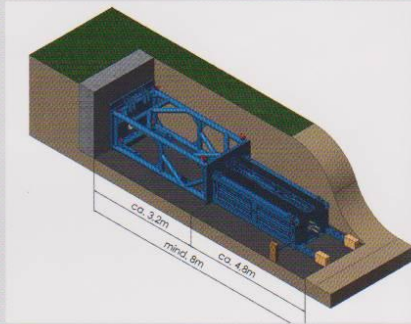
GRUNDOBURST^{1900G}

- The GRUNDOBURST 1900G generates a max. pulling force of 1,900 kN (190 t). This allows renewal of defective pipes from ND 250 to ND 800 in lengths of 300 m max.
- The rods are 2.25 m long and weigh 165 kg each, the permissible bending radius is only 55 m.



GRUNDOBURST^{2500G}

- The GRUNDOBURST2500G sets the benchmark for trenchless pipe renewal. It generates a maximum pulling force of 2,550 kN (255 t). This allows the renewal of old pipes from ND 300 to ND 1,200.
- The rods are 2.20 m long and weigh 210 kg each. For steel pipe relining projects, mains lengths up to 1,280 m can be pulled in.



2,850 x 1,150 x 1,000

3,320

716

1,900

8,000 x 2,000

400

TT B110 or TT B250

55.1 at 2,300 rpm, 127 at 2,000 rpm

250

ND 250 - ND 800

VCP, lead, PVC, PE, grey/ductile cast iron, AC, GFRP, steel up to OD 900

PE, PP, VCP, ductile cast iron, GFRP, steel

120

165

2,250

2,950 x 1,600 x 1,500

4,100

1,055

2,550

9,000 x 2,500

500

TT B250

127 at 2,000 rpm

250

ND 300 - ND 1,200

VCP, lead, PVC, PE, grey/ductile cast iron, AC, GFRP, steel up to OD 1,200

PE, PP, VCP, ductile cast iron, GFRP, steel

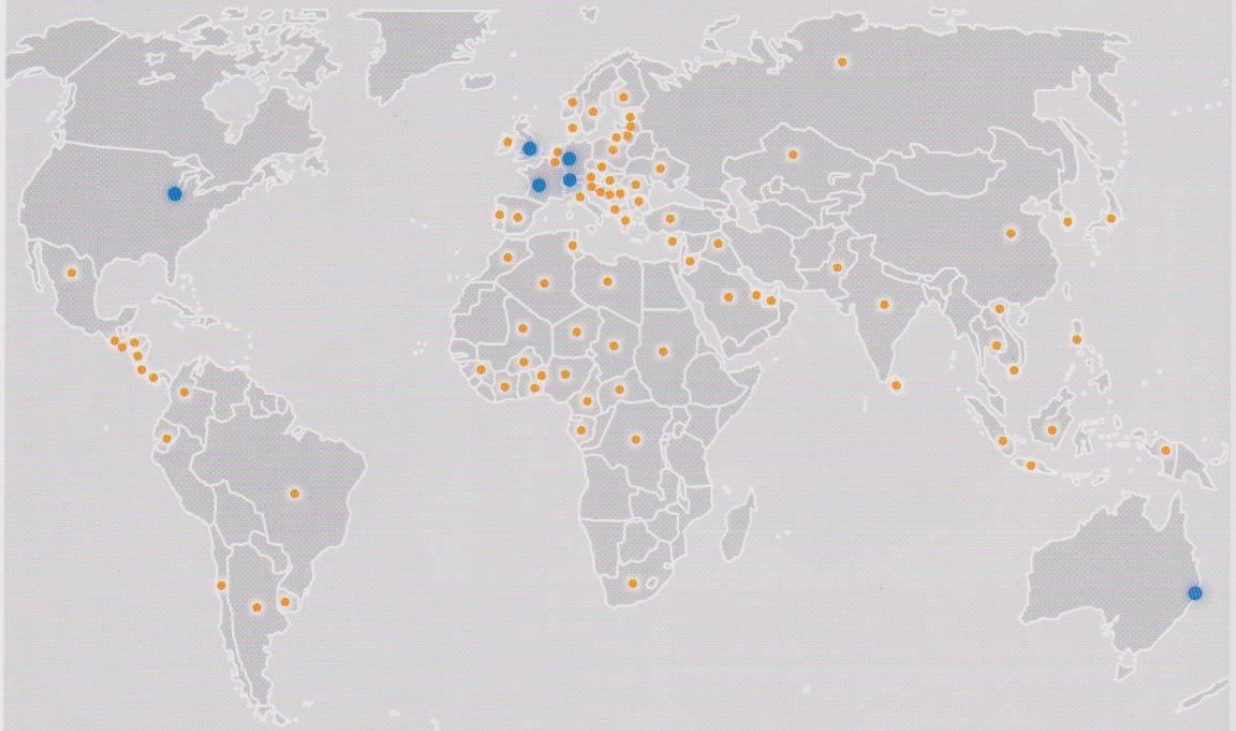
140

210

2,200

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