INSIPIRING TRENCHLESS TECHNOLOGIES

TRACTO-TECHNIK

THE CROWNING GLORY OF SOIL DISPLACEMENT HAMMERS

GRUNDOMAT
Soil displacement hammers

METHOD / APPLICATION

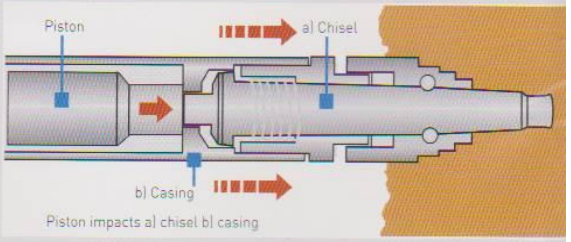
Soil displacement

Technology – always one step ahead

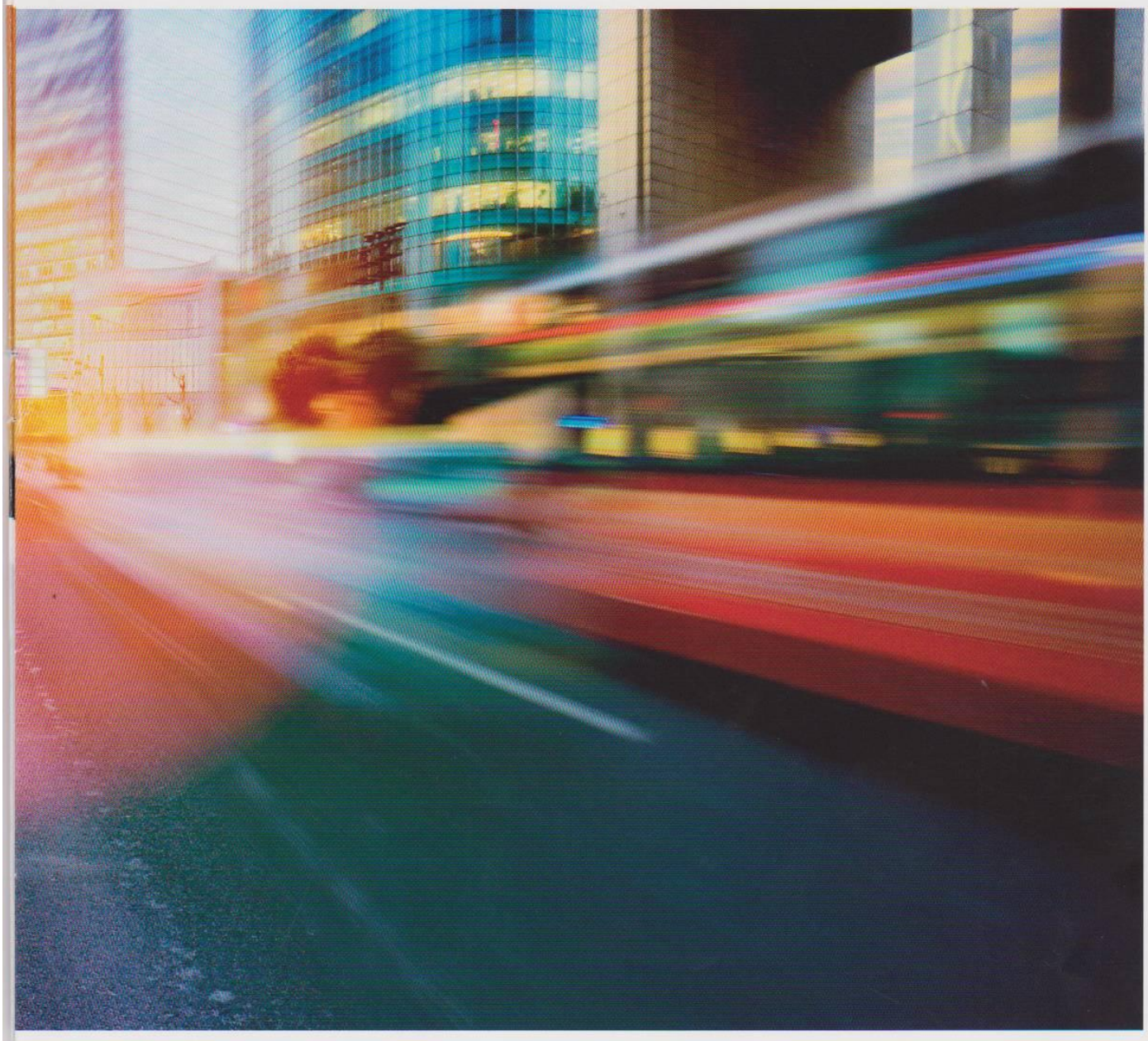
The pneumatically driven hammers work according to the soil displacement method. When moving forward the spoil is displaced into the surrounding soil. That way a channel is produced into which socketless short or long pipes up to OD 160 made of plastic (PE, PVC or PE-X) or cables can be pulled in. Depending on the type of soil lengths up to 15 m can either be pulled in successively or later. A compressor with 6 - 7 bar operating pressure is required for this. Exact alignment of the machine towards the target is necessary for a high target accuracy. To achieve this, the decisive factor is the 2-stroke principle.

THE 2-STROKE-PRINCIPLE

With the proven 2-stroke principle the piston initially strikes the multi-cutter cone which advances in order to produce the bore hole and to destroy any possible obstacles. The casing is imposed with the second strike and pulled in with the pipes attached. Peak resistance and casing friction are separated and alternately easier to overcome. This makes the GRUNDOMAT work dead on target even in stony grounds.



Piston impacts a) chisel b) casing



GRUNDOMAT^{N}: versatilely applicable

- **UNDERCROSSINGS**
  Beside road crossings, property service connections are everyday tasks for the GRUNDOMAT^{N} hammer.

- **PIPE RAMMING FROM MODEL 130**
  GRUNDOMAT can also be used for ramming in steel pipes by attaching a special ram cone to the head of the machine.

- **PIPE BURSTING FROM MODEL 95**
  Modified soil displacement hammers are also applicable for pipe renewal using the pipe bursting method.

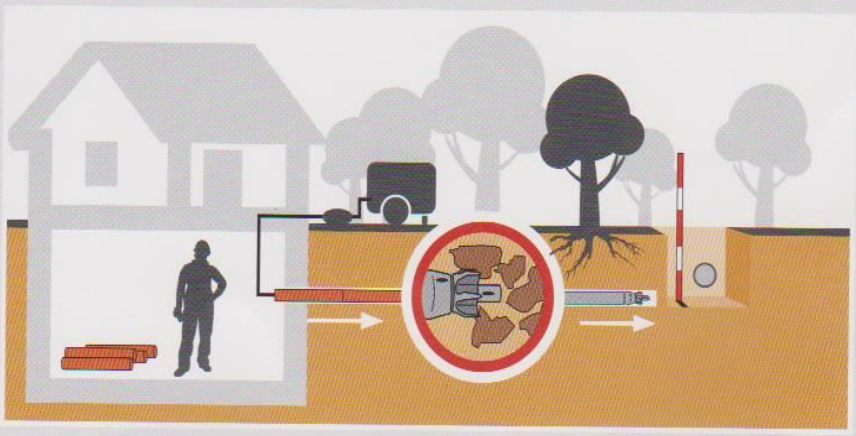
- **PILING**
  The vertical use, e.g. piling for laying foundations, is an interesting application as well.

METHOD / APPLICATION
Property service connections

Property service connections

DIRECTLY FROM INSIDE THE BUILDING...

To install property service connections for gas, water, sewage, power, broadband (FTTH) the soil displacement hammer can be started directly from the inside of a building. A head hole in front of the house wall is no longer necessary. This makes the application even more economical and the front garden remains untouched.



Professional and safe

- for FTTB, gas, water and power property service connections
- within minimal set-up time the soil displacement hammer can be started from inside the building after the core bore
- a building insertion device is set up on the inside and seals off the basement wall from the outside and inside.
- the GRUNDOMAT equiment fits into a small transporter van

CROWNED OR STEPPED HEAD
both are possible

Crowned head

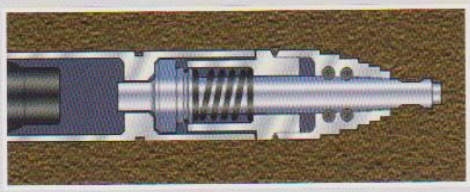
The ground provides the challenge. The ground sets the demands. The solution: GRUNDOMAT N with the twin gear control stud and with crowned head or stepped head. Both versions are precise, stable running and effective, each one in its own way. Being able to choose between two stroke frequencies and between crowned or stepped head ensures optimal adaption to the prevailing soil conditions.

The crowned head develops maximum power in non-cohesive, stony soils. The crowned head expands the pilot bore directly to the full bore diameter.

The **„head work"** is carried out in 4 working steps:

- Pre-stroke
- Pulverizing
- Relocation
- Penetration

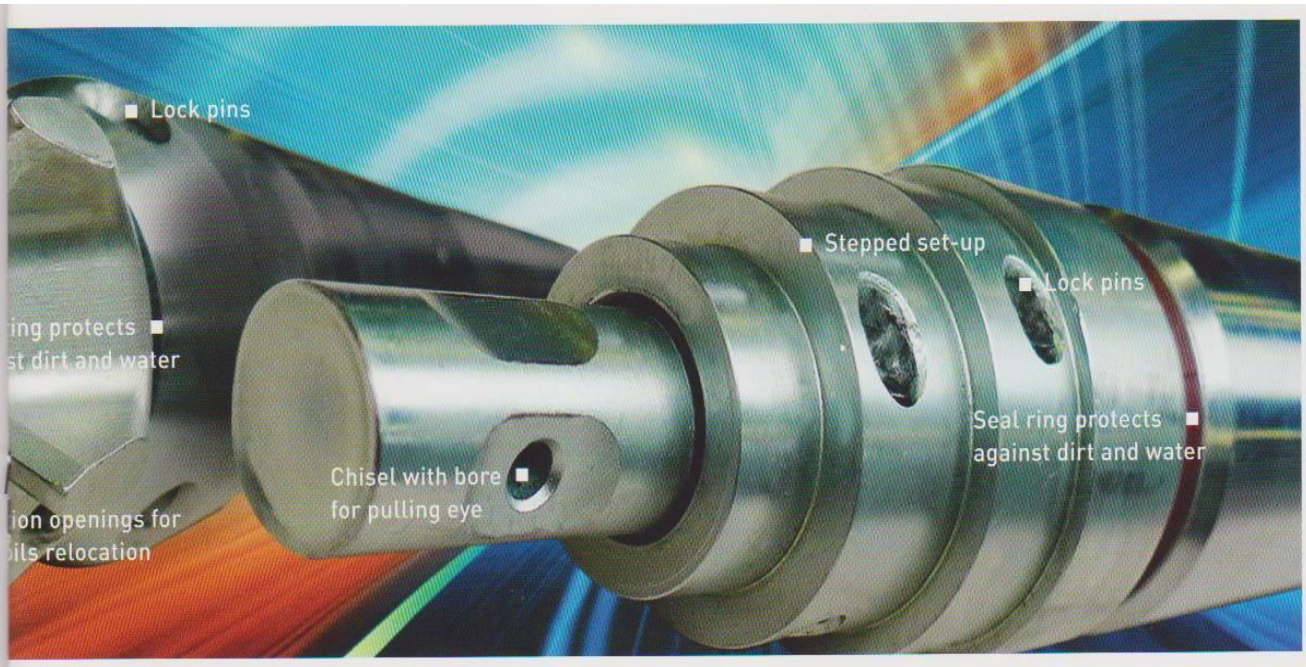
Stepped head



The proven stepped head is universally applicable in all displaceable soils. The chisel bores forward and „opens" the ground. Step by step the head then penetrates into the ground and works its way forward with great precision. The penetration process is carried out in steps guaranteeing a high running stability.

The **"head work"** is carried out in 3 working steps:

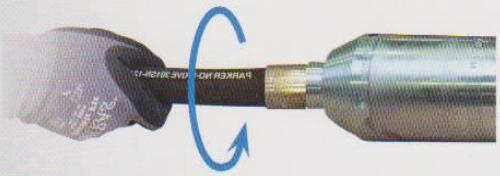
- Pre-stroke
- Pulverizing
- Penetration



Features / Advantages

- 2-stroke-principle for high aiming accuracy
- with stepped head or crowned head for even more penetration power
- 2 Gear control stud + reverse gear for optimal adaption to the soil and high application safety
- simple control stud switch over
- premium steel quality - additionally treated - low wear and tear
- partially grooved casing for better grip
- detectable for highly sensitive applications
- well sealed for minimal air consumption
- easy to maintain
- safety pack, e. g steel rope insulator for additional operator safety
- practical accessories
- fast spare parts supply
- training sessions

SIMPLE SWITCH-OVER



Switch-over: turn the compressed air hose ¼ turn to the left
- under compressed air: from forward gear to reverse gear
- pressureless: from reverse gear into forward gear

EXPERT INSPECTION FOR SAFETY AND MAINTENANCE

We conduct the statutory expert inspections on your behalf!

EXPERT INSPECTION

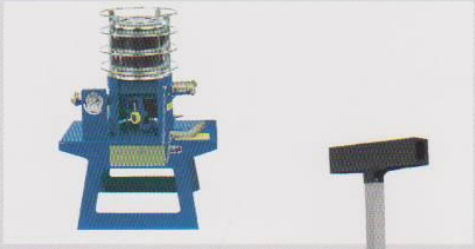
WELL TRAINED: OPERATOR TRAINING

We provide a diversified training programme which is attended by more than 3.000 participants annually.

TRAINING

ACCESSORIES
for pipe pulling and special applications

Unitherm – Compressed air heater
- optimal PE pipe installation in the cold season (from 5°C ambient temperature)
- to prevent the machine from icing



STEEL PIPE INSTALLATION
up to ND 400 with add-on ram cone

STEEL PIPE EXTRACTION
Add-on mandrel to drive out steel pipes up to ND 50

DETECTION
There are jobsite situations which require directional control. Thus the GRUNDOMAT can be equipped with detection systems (plug-on sonde housing and receiver).

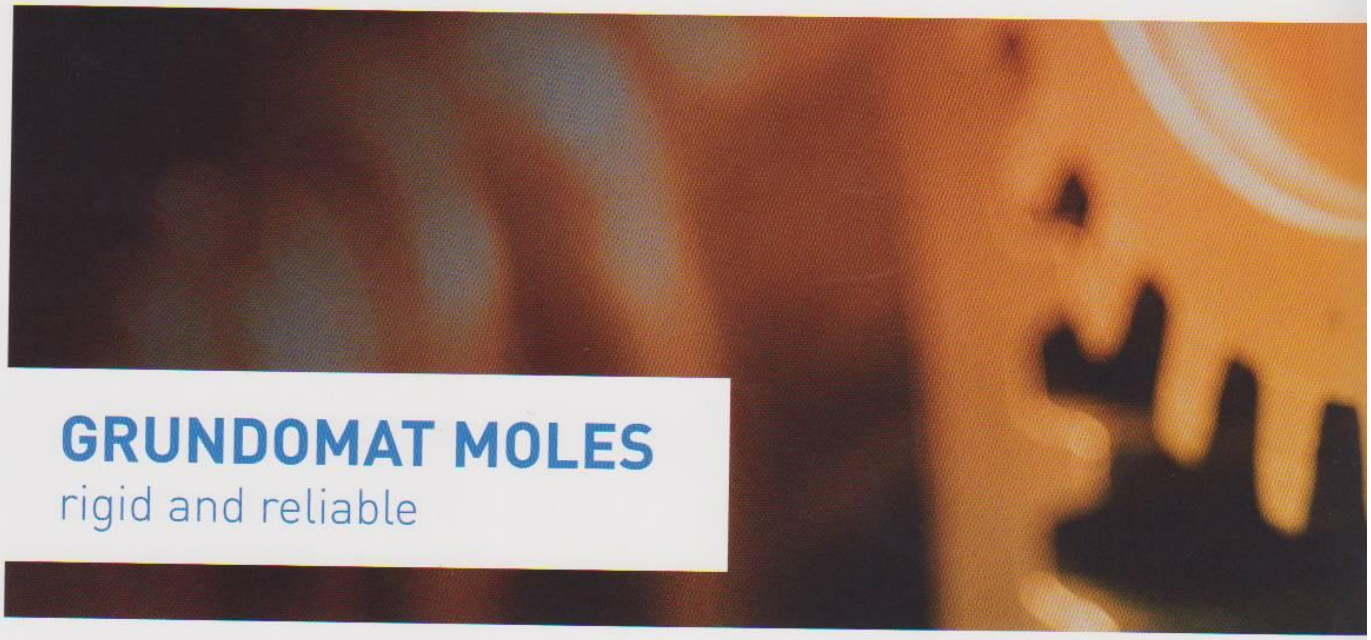
DIRECT INSTALLATION OF PE PIPES

DIRECT INSTALLATION OF PE PIPES

When the soil displacement hammer advances the pipe is pulled in directly. Advantage: in unstable soils safe pipe installation is guaranteed. Single PVC or HDPE pipes from the coil without sockets are most suitable.

SUBSEQUENT INSTALLATION OF PE PIPES (FROM THE COIL)

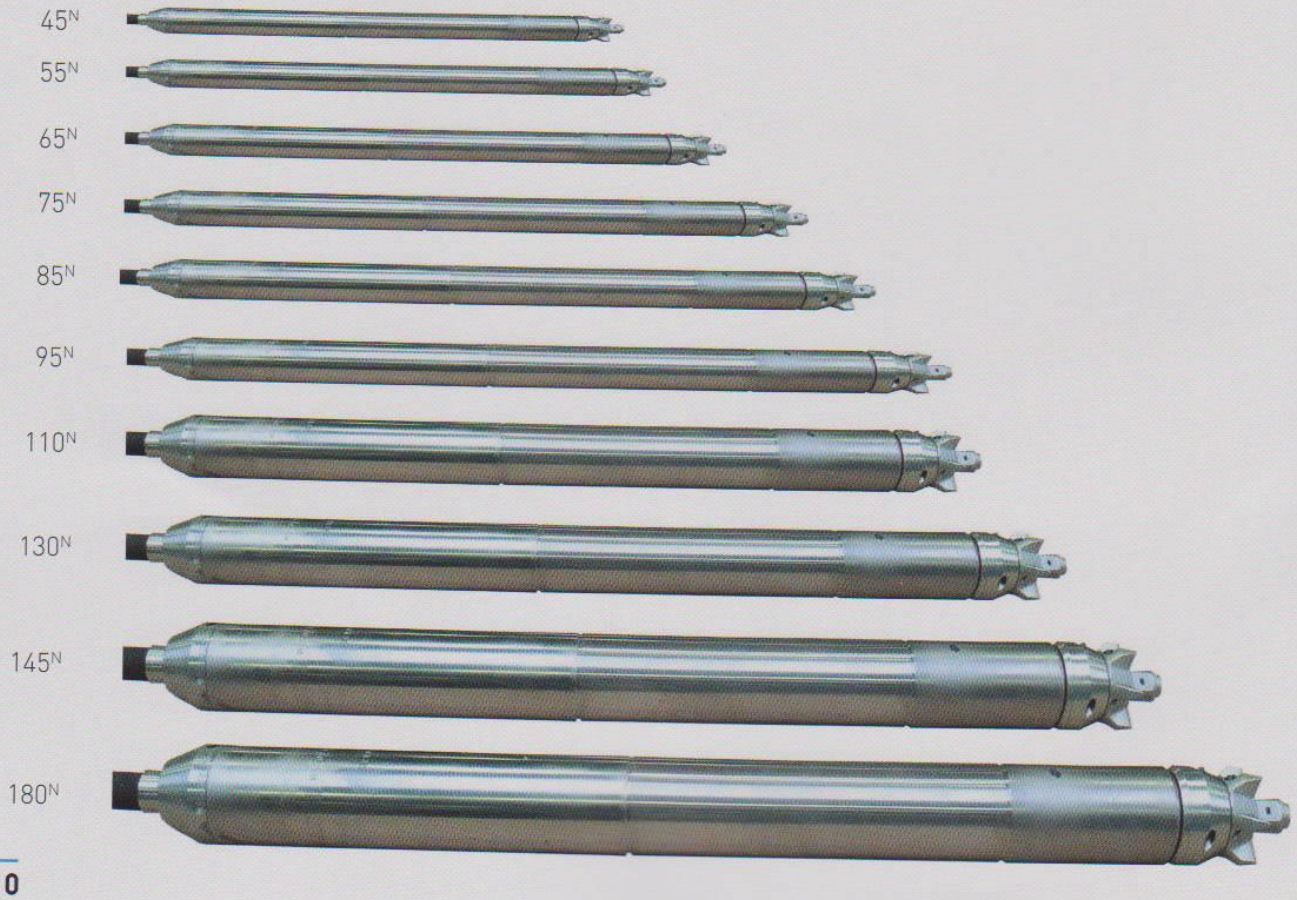
Due to their material properties HDPE pipes from the coil are easier to install after the bore. To do so the compressed air hose is disconnected and attached to the pipe by means of a cutting nipple The compressed air hose is pulled out of the bore manually with the PE pipe being pulled in simultaneously.



GRUNDOMAT MOLES
rigid and reliable

Models standard version

The pictured machines can be equipped either with a crowned head or a stepped head.



Models short version

The pictured machines can be equipped either with a crowned head or a stepped head.

The short versions are especially suitable for property service connections, as they are shorter and lighter than the standard versions. The connection pits are smaller and handling is easier.

45^{NK}

65^{NK}

75^{NK}

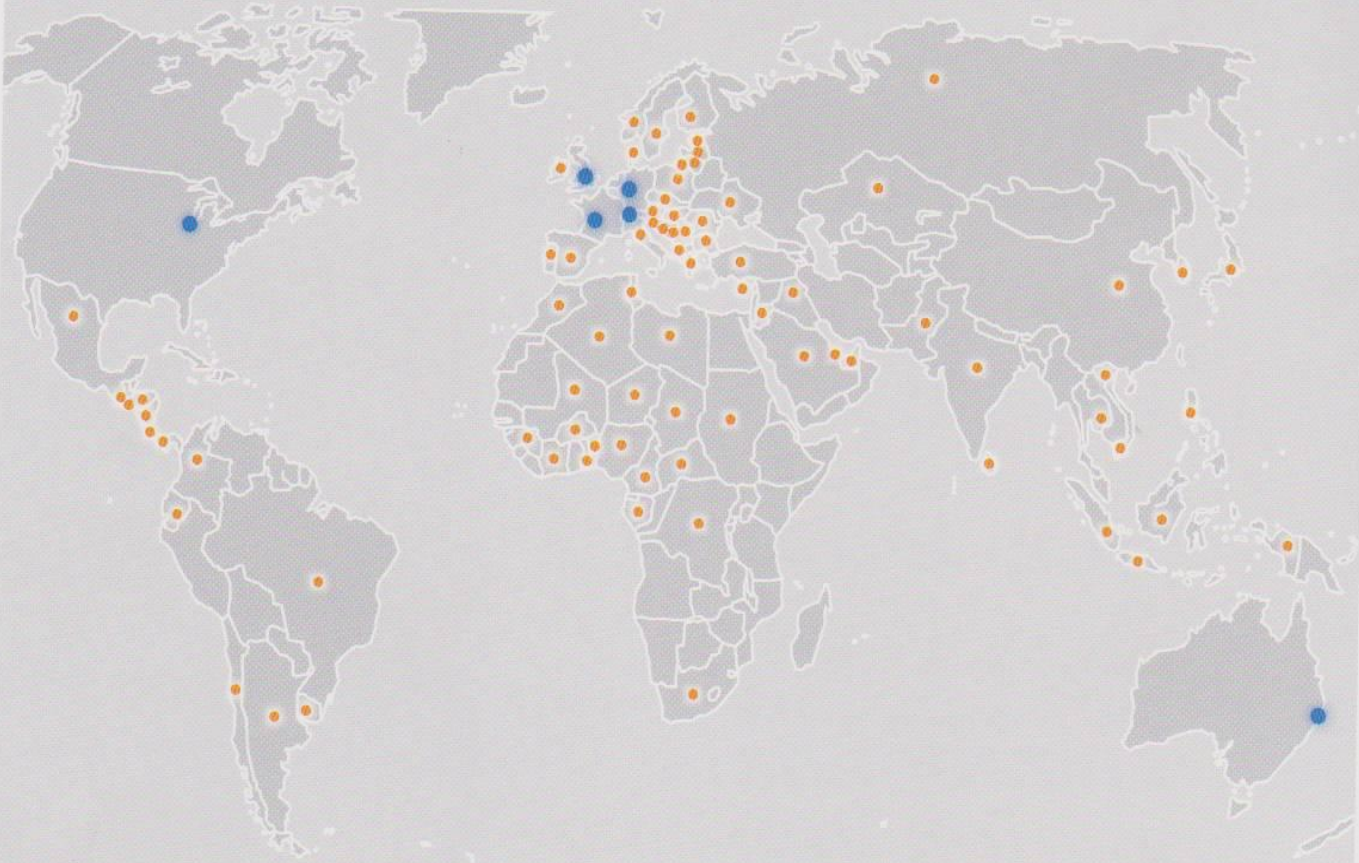
95^{NK}

Technical data

GRUNDOMAT model	Ø (mm)	Length (mm)	Weight (kg)	Air consumption (m^3)	No. of strokes min^{-1}		Pipes (max. OD mm)
					1nd gear	2nd gear	
45^{N} (2-gear control stud)	45	997	9	0,35	530	635	40
55^{N} (2-gear control stud)	55	1131	15	0,5	470	570	45
65^{N} (2-gear control stud)	65	1290	24	0,8	460	585	50
75^{N} (2-gear control stud)	75	1399	33	0,9	395	480	63
85^{N} (2-gear control stud)	85	1528	46	1,0	360	440	75
95^{N} (2-gear control stud)	95	1762	65	1,4	320	415	85
110^{N} (2-gear control stud)	110	1700	96	1,7	350	410	90
130^{N} (2-gear control stud)	130	1802	117	3-0	370	435	110
130^{N} (2-gear control stud)	130	1802	117	3,0	340	-	110
145^{N} (Servo control stud)	145	2033	168	3,4	310	-	125
180^{N} (Servo control stud)	180	2280	260	4,5	280	-	160
Short versions							
45^{NK} (1-gear control stud)*	45	875	8	0,35	530	-	40
65^{NK} (1-gear control stud)*	65	933	16	0,8	600	-	50
75^{NK} (1-gear control stud)*	75	1100	24	0,9	496	-	63
95^{NK} (1-gear control stud)*	95	1393	50	1,4	390	-	85

* To achieve shorter construction lengths, the short machines are equipped with a fixed head.

TRACTO-TECHNIK
Worldwide



Germany
TRACTO-TECHNIK GmbH & Co. KG
TT Headquarters
Paul-Schmidt-Straße 2
57368 Lennestadt · Germany
Tel: +49 2723 808-0 · Fax: -180
export@tracto-technik.de
www.TRACTO-TECHNIK.com

Switzerland
TRACTO-TECHNIK Schweiz AG
Tel: +41 79 8203897
info@tracto-technik.ch
www.TRACTO-TECHNIK.ch

United Kingdom
TT UK Ltd.
Tel: +44 1234 342566
Fax: +44 1234 352184
info@tt-uk.com
www.TT-UK.com

France
TRACTO-TECHNIQUES S.a.r.l.
Tél: +33 5 53538983
Fax: +33 5 53093941
ttf@tracto-techniques.fr
www.TRACTO-TECHNIQUES.com

USA/Canada
TT TECHNOLOGIES Inc.
Tel: +1 630 851 8200
Fax: +1 630 851 8299
info@tttechnologies.com
www.TTTECHNOLOGIES.com

Australia/Asia Pacific
TT ASIA PACIFIC Pty Ltd.
Tel: +61 7 3420 5455
Fax: +61 7 3420 5855
info@tt-asiapacific.com
www.TT-ASIAPACIFIC.com

INSIPIRING TRENCHLESS TECHNOLOGIES

Nr. 360101E15 V01 Edition 09/2014 EN
Subject to change.