

BRAWO[®] SYSTEMS

THE REHABILITATION EXPERT
FOR PROPERTY AND BUILDING DRAINAGE SYSTEMS

PRODUCT CATALOGUE

The complete range at a glance

- Liners and resins
- Machines and equipment
- Rental equipment
- Service and support



Mechanical
engineering



Renovation



Repairs

BRAWO® SYSTEMS product overview

Overview of BRAWO® SYSTEMS 4



BRAWOLINER®

- ➔ BRAWOLINER® 7
- ➔ BRAWOLINER® 3D 7
- ➔ BRAWOLINER® XT 7
- ➔ BRAWOLINER® HT 7

BRAWO® installation aids

- ➔ Preliners 8
- ➔ Calibration hoses 8
- ➔ Airbagliner 8

Overview 4 Curing methods 9

BRAWO® resins

Light-curing resins

- ➔ BRAWO® LR 10
- ➔ BRAWO® UVPox 10

Resins for steam/hot water/cold curing

- ➔ BRAWO® I 11
- ➔ BRAWO® III 11
- ➔ BRAWO® SRR 11
- ➔ BRAWO® RR 11
- ➔ BRAWO® HT 12
- ➔ BRAWO® Silicate FAST (silicate resin) 12
- ➔ BRAWO® AC and BRAWO® TC 12

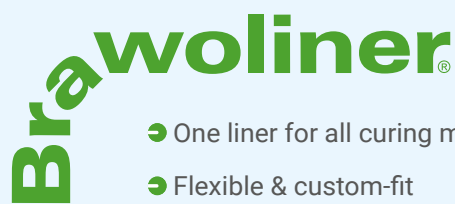
Table of processing and curing times 13

BRAWO® repairs

- ➔ BRAWO® ShortLiner 14
- ➔ BRAWO® Connection Collars 16
- ➔ BRAWO® PressureControl SP 16
- ➔ PICOTE Connection Collar System 2.0 17

> 120 YEARS OF TEXTILE EXPERTISE

BRAWO® SYSTEMS benefits from over 120 years of experience in the textile sector. Production of the seamlessly knitted BRAWOLINER® takes place in Wolfstein. Continuous development and innovation in our in-house technology centre, state-of-the-art quality assurance, fully integrated manufacturing and highly efficient, well-qualified employees mean that we deliver the best possible quality regarding all of our products and services.



- ➔ One liner for all curing methods
- ➔ Flexible & custom-fit
- ➔ Specially developed resins

BRAWO® Tech Machines

BRAWO® resin mixers

- ➔ BRAWO® Manual Compulsory Mixer 18
- ➔ BRAWO® Resin Mixing Unit 18

BRAWO® impregnation units

- ➔ BRAWO® Manual Impregnation Unit 19
- ➔ BRAWO® Electrical Impregnation Unit 19
- ➔ Vacuum pumps 19

BRAWO® inversion units

- ➔ BRAWO® Drum 4.0 20
- ➔ BRAWO® Mini Inversion Drum DN 600 21
- ➔ BRAWO® Inversion Drum DN 700 UL 21
- ➔ BRAWO® Inversion Drum DN 800 21
- ➔ BRAWO® Inversion Drum DN 800 XL 21
- ➔ Benefits and technical highlights of the BRAWO® Inversion Drum 22

Table of drum capacities 22

- ➔ Accessories, BRAWO® Inversion Drums 23
- ➔ BRAWO® Tripod 23

BRAWO® curing devices with accessories

LIGHT

- ➔ BRAWO® Pico 24
- ➔ In-house rehabilitations with BRAWO® Pico and the in-house package from PICOTE 26
- ➔ BRAWO® Magnavity SX 28

HOT WATER

- ➔ BRAWO® HotBox HQ 30
- ➔ BRAWO® HotBox VHQ 30
- ➔ BRAWO® Circulation Pumps 31
- ➔ Accessories, hose package 31

STEAM

- ➔ BRAWO® SteamGenerator ULX50 Diesel 32
- ➔ BRAWO® Control UL 32
- ➔ BRAWO® Steam Connection Adapter 33
- ➔ BRAWO® Steam Sleeves 33
- ➔ BRAWO® Steam Hose Extension 33
- ➔ BRAWO® Hose Set 33

Overview of BRAWO® curing 34

BRAWO® VortexCutter

- ➔ BRAWO® VortexCutter 36
- ➔ The BRAWO® VortexCutter series 37
- ➔ Accessories, BRAWO® VortexCutter 37

BRAWO® rehabilitation vehicles and equipment

- ➔ BRAWO® Rehabilitation vehicles 38
- ➔ BRAWO® MoCli 39

BRAWO® rental equipment

- ➔ BRAWO® Rental Park 40
- ➔ Rental equipment 40

BRAWO® Academy

BRAWO® Downloads 41

BRAWO® Academy

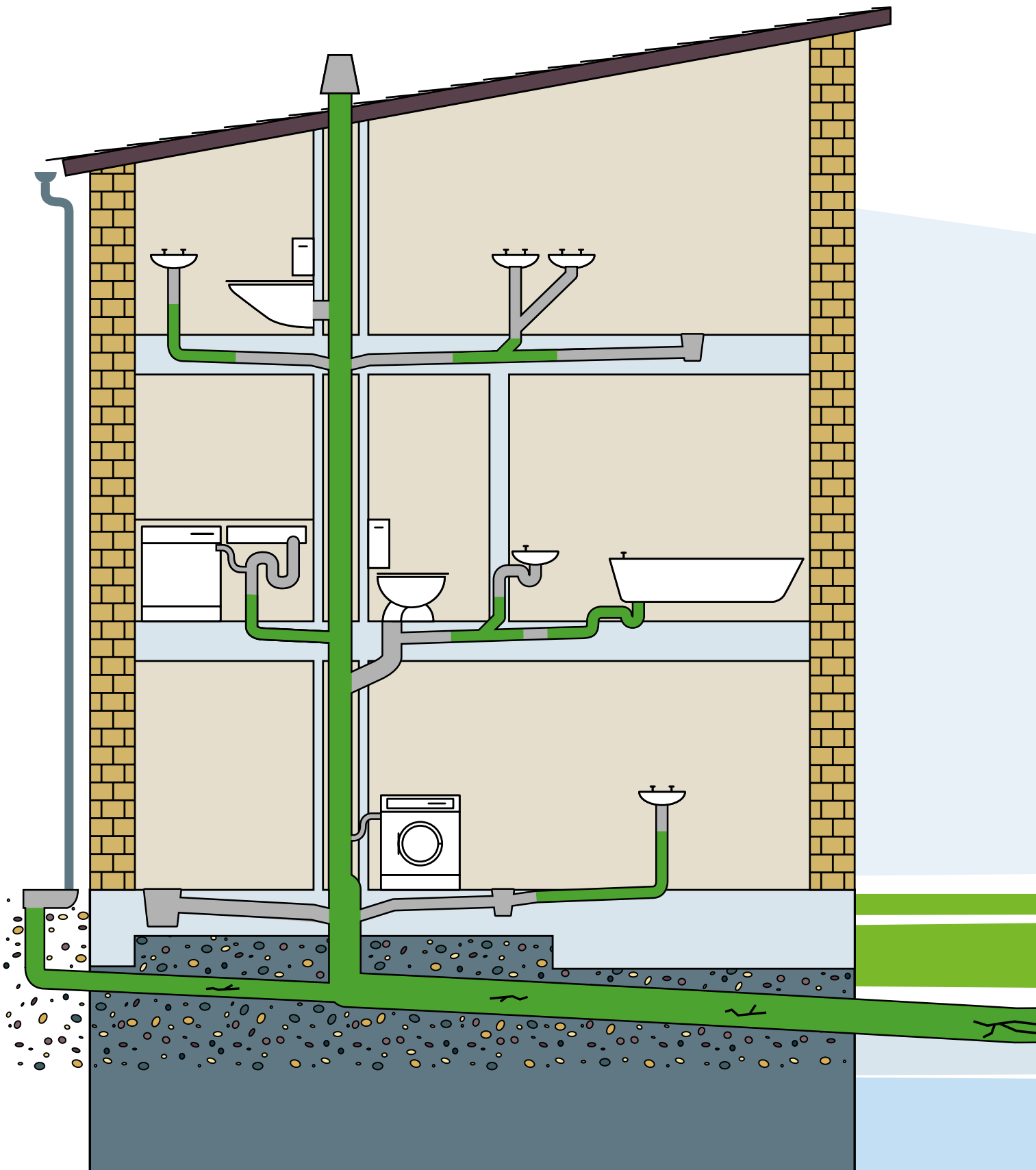
- ➔ Training and development programme 42

BRAWO® Tech

- ➔ High-tech mechanical engineering & rehabilitation equipment
- ➔ Vehicle fitting
- ➔ Rental equipment

BRAWO® Academy

- ➔ Training centre for pipe rehabilitation
- ➔ Construction site support on site
- ➔ Customised consulting service



Renovation

BRAWOLINER® for the reliable renovation of pipes

The seamlessly knitted textile hose is the solution for trenchless pipe rehabilitation inside buildings and in underground areas.

More on this from page 6

Repairs

BRAWO® ShortLiner for repairing individual cases of damage

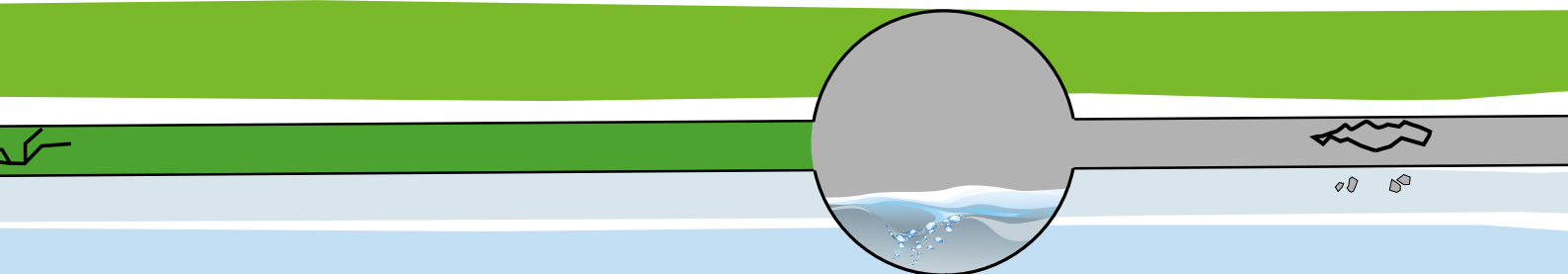
With the BRAWO® ShortLiner, repairs can be carried out in closed construction, even in difficult sewer and pipe runs and bends.

More on this from page 14

BRAWO® connection collars for repairing the connection area

The rehabilitation of defective branches or inlets is a major challenge. BRAWOLINER® offers the perfect solution.

More on this from page 16



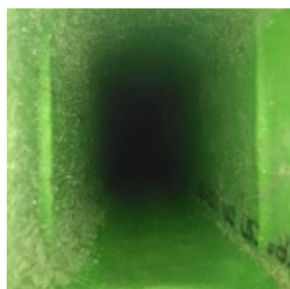
BRAWOLINER®

BRAWO® SYSTEMS is the only company to produce seamless textile hoses for the rehabilitation of defective pipes, also in small diameters. With a service life of over 50 years, BRAWOLINER® is an economical and environmentally friendly alternative to open construction!

Special loop construction
– over 120 years of textile expertise

Also suitable for special profiles

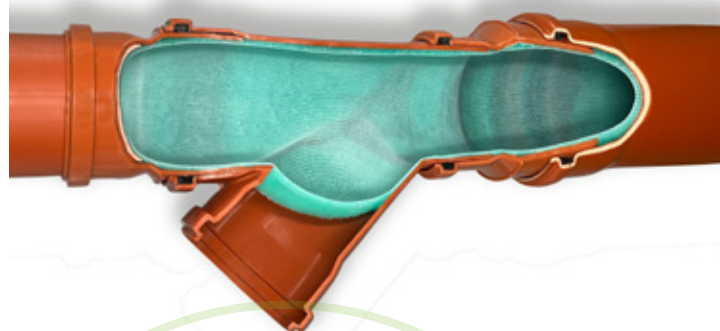
SQUARE PROFILES



Bends up to 90°

Seamlessly knitted
and extremely flexible

One liner for all four curing methods



OVOID
PROFILES

**Up to two
dimensional
changes**

Brawoliner®



BRAWOLINER®

Standard liner for sewer rehabilitation

- From DN 50 to DN 250
- Bends up to 90°
- Maximum one dimensional change



BRAWOLINER® 3D

Liner for multiple dimensional changes

- From DN 70 to DN 100
- From DN 100 to DN 150
- From DN 150 to DN 225
- From DN 200 to DN 300
- From DN 300 to DN 400
- Bends up to 90°



BRAWOLINER® XT

Liner for pipes subject to high structural loads

- From DN 100 to DN 250
- Higher nominal rigidity
- Bends up to 90°
- Maximum one dimensional change



BRAWOLINER® HT (XT, 3D)

Liner for rehabilitation inside buildings

- From DN 50 to DN 250
- Bends up to 90°
- Up to two dimensional changes
- Hot curing at higher temperatures with water or steam is possible

BRAWO® installation aids

Preliner

Preliners are inserted as an outer foil between the liner and the old pipe if bonding to the old pipe is not desired or when carrying out rehabilitation in zones saturated with groundwater (DIBt requirement).

- From DN 100 to DN 300
- Flexible foil tube made of PE
- Material thickness approx. 150 µm
- Can be used for bends up to 90°

Calibration hoses

Calibration hoses are used as a support tube for inserting the liner into the pipe being rehabilitated. Rehabilitation with an open end is recommended if it is not possible to open the sealed liner or if only a section of the pipe needs to be rehabilitated.

- From DN 80 to DN 400
- Calibration hoses for various temperature ranges
- PVC material with PES fabric insert
- Good bend flexibility up to 45°

Airbagliner

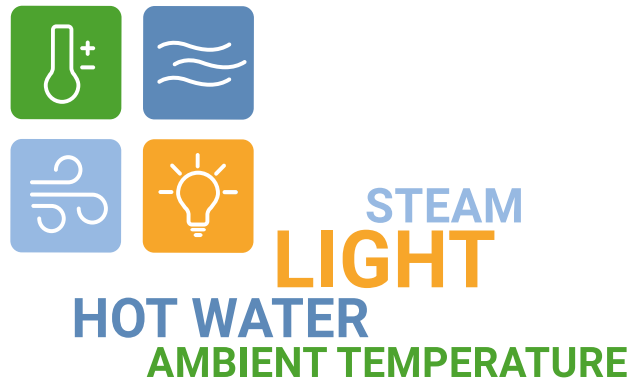
BRAWO® SYSTEMS offers the AIRBAGLINER® for greatly simplified and even faster steam curing.

- From DN 50 to DN 400
- Very high flexibility and extreme sliding capacity
- Inversion also greatly simplified in pipes with small diameters and changes of direction
- Heat-resistant up to 150 °C, can be removed in less than 60 minutes
- Simplified retraction due to the high sliding capacity
- Pressure resistance of up to 2 bar
- Able to negotiate bends particularly well
- Reusable up to 6 times
- Also suitable for light curing



BRAWOLINER®

One liner for all **4** curing methods:



Light curing with UV and LED light

Fast and cost-effective curing with light

- ➔ For construction sites in the in-house area and underground mains and connection pipes
- ➔ Ideal for construction sites under time pressure



Light curing with UV and LED light

Steam curing

Heat curing with steam

- ➔ Ideal for pipes in the in-house sector



Steam curing

Hot water curing

Heat curing with water

- ➔ Ideal for underground main and connection pipes

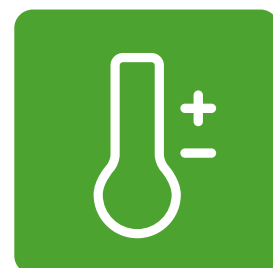


Hot water curing

Cold curing (without additional heat)

Curing at ambient temperature

- ➔ For construction sites in the in-house area and underground mains and connection pipes



Cold curing

BRAWO® resins

The BRAWO® 2K epoxy resins can be cured at ambient temperature. The curing time can be considerably shortened by applying heat. The BRAWO® 1K resins are made to cure using light. The curing times achieved in this way offer an economic benefit during installation while at the same time ensuring a high level of installation safety.

All resins have outstanding material properties:

- High abrasion resistance
- Solvent-free
- Excellent structural values
- Shelf life over 50 years
- High chemical resistance
- Harmless to the hygiene of groundwater
(tested by the Institute for Environmental Hygiene and Environmental Medicine, Gelsenkirchen)

Light-curing resins



BRAWO® LR is a special vinyl ester resin for curing with UV and LED light and has been optimised for use with the BRAWOLINER®.

- Styrene-free
- Low odour during installation
- High abrasion resistance
- Curing with light curing units (UV and LED light)



BRAWO® LR

- For the rehabilitation of sewers in the area of domestic sewage and curing with light

BRAWO® UVPox is the first pigmented light-curing epoxy resin optimised for use with the BRAWOLINER®.

- Positive fit in the old pipe without penetration of water behind
- High installation reliability due to extremely long processing time
- Optical check using coloured resin
- Targeted, fast curing
- Styrene-free and low-odour
- Curing with light curing units (UV and LED light)



BRAWO® UVPox

- For more efficient light curing in buildings and on properties

Resins for steam/hot water/cold curing



BRAWO® I

- The fast-curing resin for underground pipes is particularly suitable for rehabilitating shorter pipes up to approx. 15 metres in length



BRAWO® III

- Thanks to the long processing time, the resin is suitable for the rehabilitation of longer pipe sections or large pipe diameters



BRAWO® SRR

- The new, extremely fast epoxy resin for impregnating the BRAWOLINER® and the BRAWOLINER® connection collars



BRAWO® RR

- For the rehabilitation of connection pipes or short pipe sections

Container sizes
from 1.5 kg to
1000 kg



Resins for steam/hot water/cold curing



BRAWO® HT

- For rehabilitation inside buildings. High thermal dimensional stability (≥ 93 °C according to DIN 75-2) and fire protection (building material class B2 according to DIN 4102)



BRAWO® Silicate FAST (silicate resin)

- The organic-mineral resin is suitable for short rehabilitation sections due to its fast curing time



BRAWO® AC and BRAWO® TC

- Optimised for use with the BRAWOLINER® 3D DN 300-400.



The processing and curing times of the epoxy resins at a glance

Container sizes from 1.5 kg to 1000 kg

	Processing time at 15 °C	Curing time at 10 °C	Curing time at 20 °C	Curing time at 50 °C	Curing time at 70 °C
BRAWO® I	50 min.	13 hrs.	6 hrs.	100 min.	45 min.**
BRAWO® III	3.5 hrs.	24 hrs.	12 hrs.	220 min.	140 min.**
BRAWO® RR***	30 min.	6 hrs.	3 hrs.	75 min.	not recommended
BRAWO® SRR***	30 min.	4 hrs.	2 hrs.	30 min.	not recommended
BRAWO® HT	70 min. (20 °C)	24 hrs.	13 hrs.	140 min.	80 min.**
BRAWO® AC*	2 - 2.5 hrs.	24 hrs.	–	220 min.	140 min.
BRAWO® TC*	8 hrs.	not recommended	–	not recommended	5 hrs.
BRAWO® Silicate FAST	20 min.	120 min.	–	–	–

* Only suitable for BRAWOLINER® 3D DN 300-400

** Only in conjunction with BRAWOLINER® HT or with a suitable calibration hose

*** Caution: with BRAWO® RR and BRAWO® SRR, there is a risk of extreme temperature development as a result of the exothermic resin reaction when curing with steam. Curing with steam is therefore not recommended.

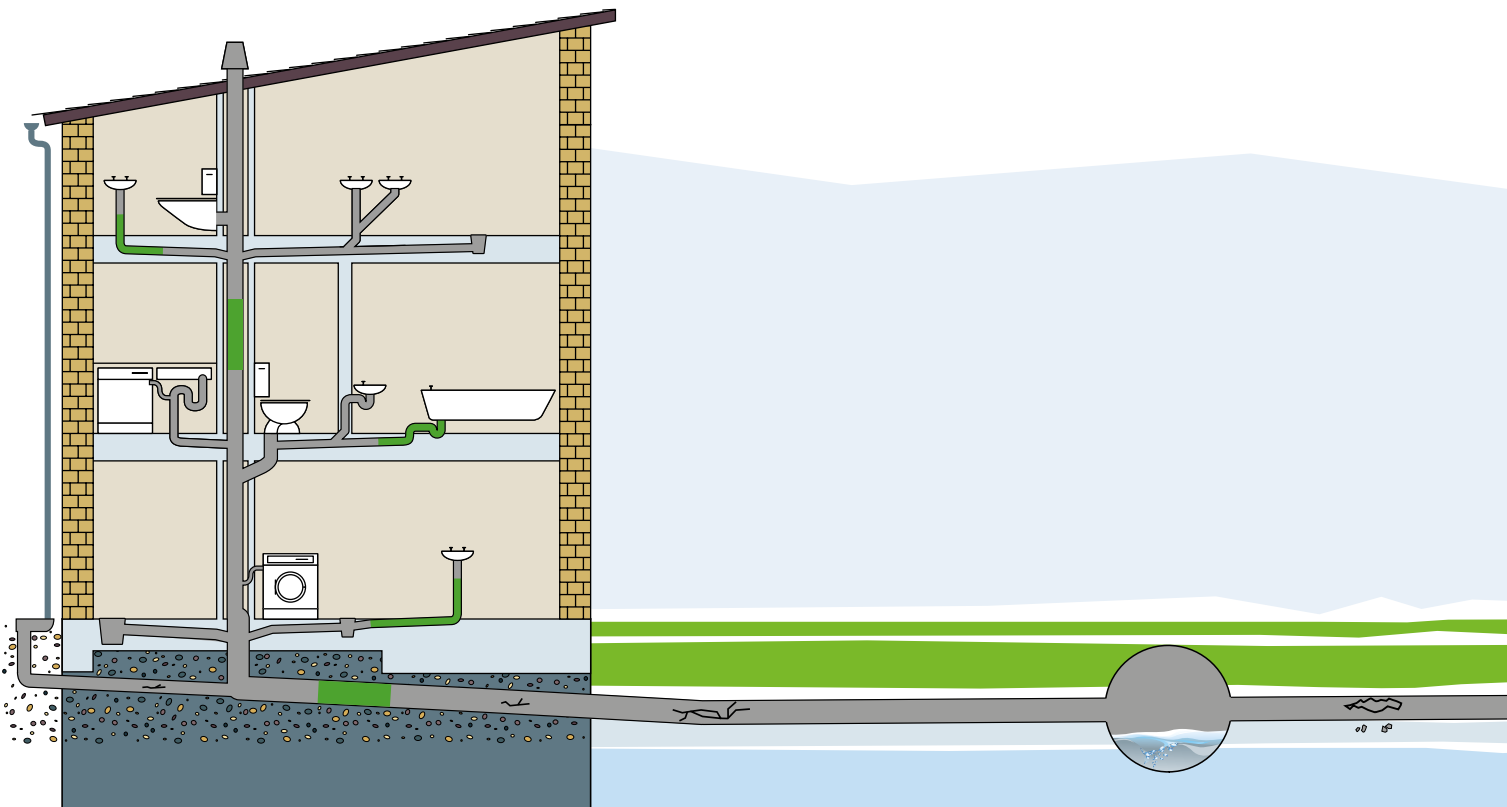
BRAWO® ShortLiner

Repairs made short and sweet with the repair method for sewers and pipes for diameters DN 70 – 200. BRAWO® ShortLiner comprises the tried-and-tested BRAWOLINER® 3D, the epoxy resin BRAWO® SRR and the Bendy Packer from Picote including accessories.

BRAWO® ShortLiner is characterised in particular by a very high degree of flexibility. Repairs can be carried out in a closed construction method even in difficult sewer and pipe runs as well as on bends.



Repairs – short and sweet





BRAWOLINER® 3D

- Tried-and-tested seamless, highly flexible carrier material
- Easy to soak
- Very good bend flexibility
- Suitable for several changes in dimension



BRAWO® SRR

- Tried-and-test bi-component EP resin system
- Fast curing even at ambient temperature
- Proven combination of materials
- High chemical resistance
- Good mechanical characteristics
- Positive and frictional fit on most old pipe materials



Bendy Packer

- Special packer for repairing damage on sharp bends
- Removable control ball for complicated pipe runs
- Control guide for insertion into junctions
- Several changes in dimension possible
- Bladder expanding centrally to the ends, ensures the carrier material is pressed on without creases
- Length expansion control ensures resistance and longevity
- Compatible with air-driven push rods from the PICOTE connection collar system 2.0

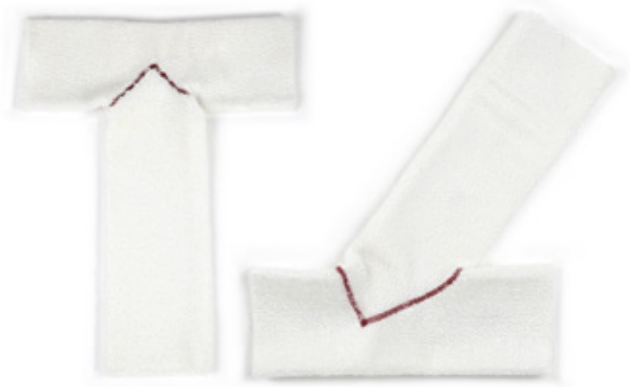


BRAWO® connection collars

The rehabilitation of defective pipe unions is a major challenge. BRAWO® SYSTEMS offers the perfect solution for main pipes from DN 100 to DN 150 and inlets from DN 70 to DN 150.

BRAWO® Connection Collars

- Flexible BRAWOLINER® material
- Optimal adjustment to the pipe run after the connecting piece
- Tight and particularly stable connection
- Ideal combined with a BRAWOLINER® rehabilitation

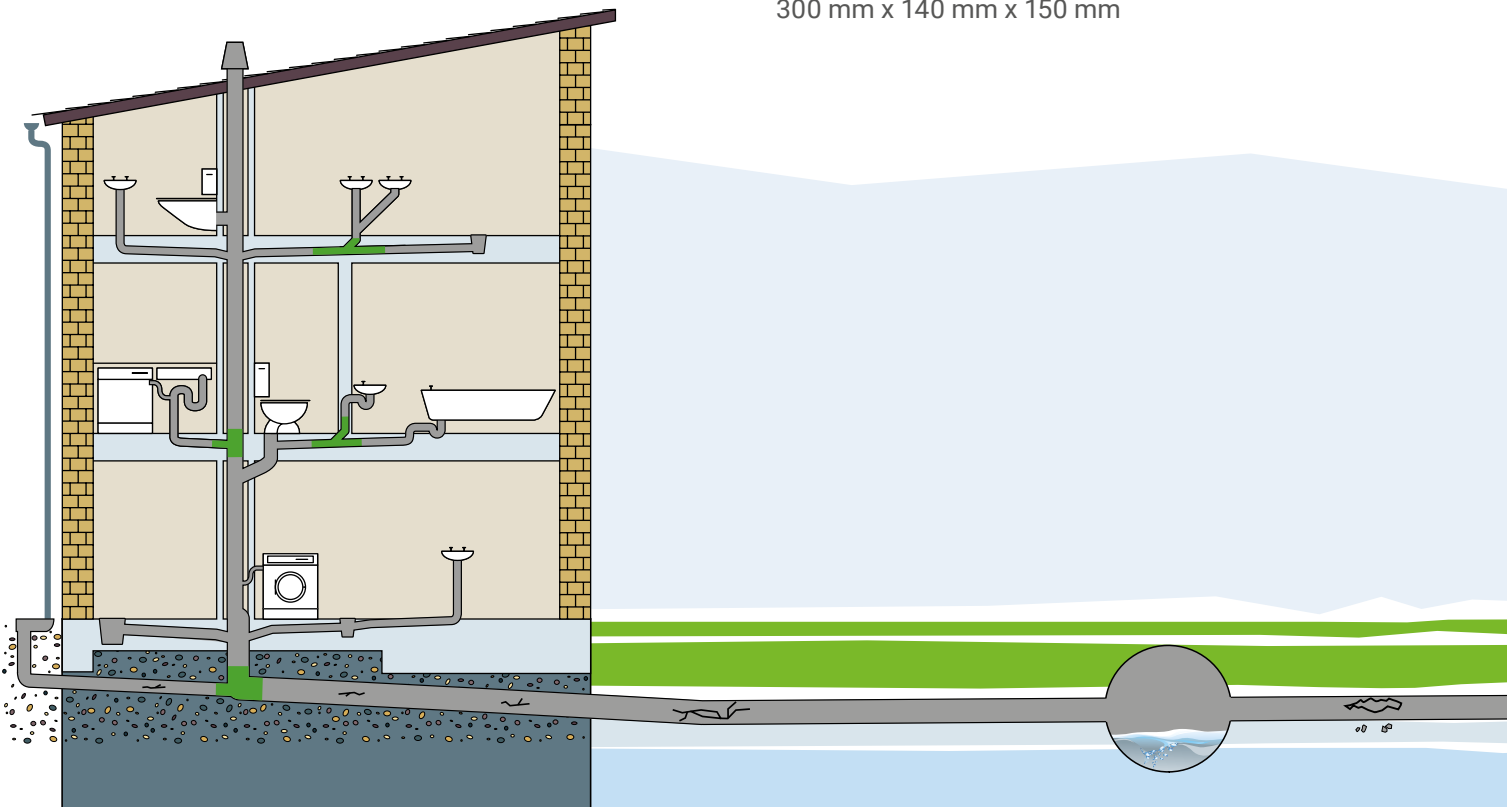


BRAWO® PressureControl SP

The compact device for the installation of connection collars when using cold curing. With just one hand you can vent the packer or pressurise it.

Benefits of the BRAWO® PressureControl SP

- Precise and automatic pressure control
- Lockable pressure control valve
- Robust and lightweight design (weight 2.3 kg)
- Dimensions (L x W x H):
300 mm x 140 mm x 150 mm





Perfect with
**BRAWO® Connection
Collars**



PICOTE Connection Collar System 2.0

- 360° connection rehabilitation system for easy use with BRAWOLINER® connection collars and BRAWO® resins
- Installation holder in two sizes with special cap design
- Unique push rod design
- Robust special bladders (silicone with fabric reinforcement) for 45° and 90° inlets with sufficient main pipe length to compactly prepare the bladder
- Accessory package with all the necessary auxiliary materials

BRAWO® resin mixers

Epoxy resins are reaction resins with which the curing process only begins when the resin and hardener are brought together. For even curing, exact dosing and careful mixing of the two components is necessary.



BRAWO® Manual Compulsory Mixer for bubble-free mixing

BRAWO® Tech offers a compulsory mixer that allows resin and hardener to be mixed thoroughly without bubbles.

- High-quality compulsory mixer gearing with quick coupling
- Can be mounted on all drills with a Euro shaft
- Specially shaped counter-rotating mixing tools prevent the inclusion of air
- Drill optional

BRAWO® Resin Mixing Unit

The BRAWO® Resin Mixing Unit makes work much easier for large jobs. The amount of resin can be precisely adjusted and is reliably mixed in the prescribed ratio of resin and hardener.

Climate chamber with material storage

- Automatic cooling and heating
- Optimum resin temperature in any weather
- 60 kg resin stem
- 20 kg BRAWO® I hardener
- 20 kg BRAWO® III hardener
- Customised container sizes and output quantities on request

High-precision dosing

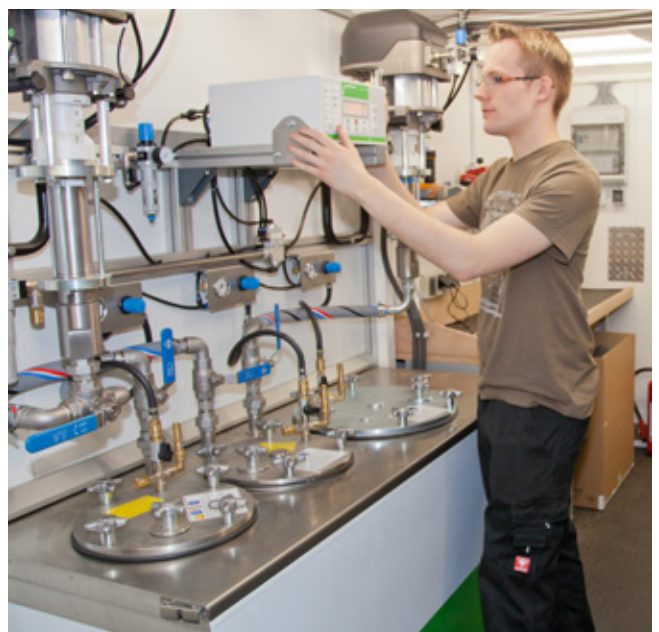
- 2 independent precision piston pumps
- Mixing ratio freely adjustable
- Low maintenance and low wear

Reliable mixing process

- Mixing with disposable static mixer
- Minimal cleaning effort - no solvents required

Simple and convenient handling

- Total amount is set on the control unit
- Mixing at the touch of a button on the impregnation unit
- Both hands free thanks to swivelling mixing head



BRAWO® Impregnation Units

A protective and good impregnation is an essential success factor for a very high quality rehabilitation process. BRAWO® Tech offers you the following devices for this purpose:



BRAWO® Manual Impregnation Unit

The manual impregnation unit is a good entry level solution. The mobile unit can be easily transported and set up in-house or on industrial sites directly at the building site. Ideal for short rehabilitation sections.

- Mobile impregnation unit, folding feet
- Easy to transport and store
- Manual operation of the conveyor belt via hand crank
- Variable height adjustment/roller spacing



BRAWO® Electrical Impregnation Unit

The convenient profile solution. The electrical impregnation unit also enables careful and uniform impregnation of long rehabilitation sections or large diameters without the need for manual strength.

- Stepless regulation of the roller spacing with exact position indicator
- Light, slim and individually positionable
- Electric belt drive (forward and return)
- Rollers driven synchronously
- Roller speed stepless regulation
- Pull-out roller belt for extending the working area

Technical data for manual impregnation unit

Belt length:	2050 mm
Belt width:	480 mm, for liners up to DN 300
Working height:	approx. 860 mm, bench approx. 6 degree slope
Weight:	42 kg

Technical data for electrical impregnation unit

Belt length:	3000 mm
Roller belt:	2500 mm
Belt width:	500 mm, for liners up to DN 300
Working height:	approx. 860 mm
Weight:	115 kg



Vacuum pumps

A vacuum pump facilitates impregnation and significantly reduces the danger of air inclusions. BRAWO® Tech offers powerful pumps for quickly evacuating excess air.

- Dry-running and air-cooled
- With vacuum control valve, manometer and relief valve
- Including vacuum hose with suction device
- Available with wall mounting bracket or carrying handle

BRAWO® inversion units

The inversion process is critical for the rehabilitation result. Only when the liner is introduced with a constant and uniform pressure, can it adapt optimally to the pipe wall. BRAWO® Tech offers only high-quality professional-quality inversion drums. The best stainless steel, the high-quality workmanship and well-thought-out design enable an optimal result and professional work for years.



BRAWO® Drum 4.0 ambient • steam • water • light

BRAWO® Drum 4.0: the one for everything!

The BRAWO® Drum 4.0 is characterised by its high flexibility in terms of its possible applications. It has universal connection options, such as for the BRAWO® Magnavity SX light curing system. The chassis design has been optimised so that the drum can be positioned directly above the respective shaft. A large handwheel provides better control when inverting the liner.

In addition, the drum comes in a robust stainless steel design suitable for construction sites.

Due to the camlock coupling, accessories such as inversion bends can be attached continuously at different angles. The angle of the drum output can also be adjusted in any axis-centered manner. All positions are possible from vertically downwards (directly above a shaft) to vertically upwards (downpipe with access from the basement).



STEAM
LIGHT
HOT WATER
AMBIENT TEMPERATURE

Technical data for BRAWO® Drum 4.0

Drum diameter:	700 mm
Dimensions L x W x H (mm):	1050 x 760 x 1050
Weight:	approx. 65 kg
Capacity:	up to 48 m DN 150
Operating temperature:	max. 90 °C
Max. Operating pressure:	0.9 bar

The new innovative BRAWO® Drum 4.0 is a universally applicable inversion drum for all four curing methods:

Curing at ambient temperature

Hot curing with water and steam

- The rotary joint on the drum axis and the drain valve make it even easier to set up the circulation. The curing process can be accelerated by water or steam.

Curing with UV/LED light

- The adaptation of the light source is now possible without an additional airlock. From the beginning of the inversion to the completion of the curing, the liner remains continuously under pressure.



BRAWO® Mini Inversion Drum DN 600

- This drum offers high capacity with low weight and thus combines the advantages of the tried-and-tested BRAWO® inversion drums with maximum mobility



BRAWO® Inversion Drum DN 700 UL

- The lightest 700 mm stainless steel drum on the market, with a weight of less than 50 kg



BRAWO® Inversion Drum DN 800

- Universal drum made of robust stainless steel with maximum capacity for long rehabilitation sections



BRAWO® Inversion Drum DN 800 XL

- Larger capacity, with camera gate for visual inspection during rehabilitation

Benefits and technical highlights of the BRAWO[®] Inversion Drums



Drum axle with water connection

- Easy filling of the liner with water without opening the drum
- Outlet on the underside to create circulation



Pressure control on the back of the drum

- Enables precise control of inversion and holding pressure
- Fill height display (water level)



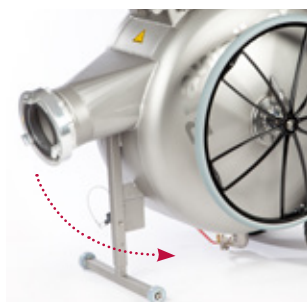
Hose connection in the drum

- Inversion of the water hose possible at the same time



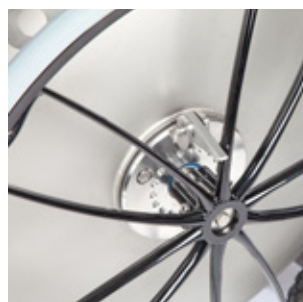
Solid substructure with pneumatic tyres

- For safe and easy transport



Inversion opening swivelling or height-adjustable

- Optimum positioning of the inversion pipe



Large handwheel for better control

- To control the inversion speed
- Fixable

Drum capacities of the BRAWO[®] Inversion Drums

In metres and depending on the respective diameter of the BRAWOLINER[®]

Drum	Drum volume (litres)	Weight	L x W x H (cm)	DN 50	DN 70	DN 100	DN 125	DN 150	DN 200	DN 300
BRAWO[®] Drum 4.0	109.45	approx. 65 kg	105 x 76 x 105	200 m	120 m	72 m	57 m	48 m	35 m	–
With water hose, 3/4"				95 m	95 m	56 m	44 m	37 m	27 m	–
With water hose and calibration hose				–	54 m	36 m	29 m	25 m	17 m	–
Mini DN 600	47.1	approx. 46 kg	90 x 50 x 90	88 m	45 m	33 m	29 m	25 m	18 m	–
With water hose, 3/4"				45 m	38 m	28 m	24 m	22 m	15 m	–
With water hose and calibration hose				–	32 m	23 m	20 m	18 m	12 m	–
DN 700 UL	109.45	approx. 49 kg	110 x 70 x 105	200 m	120 m	72 m	57 m	48 m	35 m	–
With water hose, 3/4"				95 m	95 m	56 m	44 m	37 m	27 m	–
With water hose and calibration hose				–	54 m	36 m	29 m	25 m	17 m	–
DN 800	145.72	approx. 79 kg	125 x 70 x 115	270 m	165 m	100 m	80 m	65 m	50 m	–
With water hose, 3/4"				140 m	130 m	78 m	62 m	47 m	38 m	–
With water hose and calibration hose				–	78 m	52 m	41 m	35 m	25 m	–
DN 800 XL	228	approx. 89 kg	125 x 90 x 115	366 m	188 m	125 m	101 m	84 m	60 m	23 m
With water hose, 3/4"				275 m	141 m	94 m	74 m	63 m	45 m	18 m
With water hose and calibration hose				179 m	91 m	61 m	48 m	41 m	30 m	15 m

Attention: The figures in metres are theoretical values and are only intended as a guide! All figures are approximate and are based on or calculated from experience. The actual capacity may vary depending on the water hose used, the calibration hose and winding accuracy.

Drum capacities for the BRAWOLINER[®] 3D always refer to the smaller dimension specified (e.g. BRAWOLINER[®] 3D DN 150 – 225 = drum capacity specification for DN 150).

BRAWOLINER[®] 3D (due to greater wall thickness): specification from table minus 3 m for safety

Accessories BRAWO® Inversion Drums – flexible and robust



Inversion pipes

- Straight and bent
- Storz 205, F-150 and A-110 coupling
- Pipe diameter (mm) 50, 70, 100/120, 150, 200, 300



Inversion hoses

- For flexible extension of the inversion pipes
- Storz 205, F-150 and A-110 coupling
- Lengths 0.5 m, 1 m, 2 m, 3 m; special lengths available on request



Retaining strap

- Sturdy flat cord for control and secure regulation of the inversion speed.



Blind coupling F150 (water)

- The blind cover makes it possible to keep the liner pressurised after inversion and to use the pressure drum for the inversion of another liner
- 2 connections for air and water



BRAWO® Tripod for water column inversion DN 200 and DN 300

- Installation device for inversion using hydrostatic pressure (water column)

GEKA water connection and plastic lip



Integrated GEKA water hose connection

Plastic lip prevents damage to the liner

BRAWO® Curing Devices with accessories



BRAWO® epoxy resins can be cured at ambient temperature. The curing time can be significantly reduced by applying heat. This can take the form of UV and LED light, hot water or steam. BRAWO® Tech offers reliable equipment for speeding up the curing process, which pays for itself very quickly.

Light curing



Curing with light

BRAWO® Pico
smart • efficient • small



SAVE TIME AND EFFORT

The innovative and unique LED head allows simultaneous retraction and inversion of the liner by means of unlocking. Curing is thus carried out immediately after installation of the liner – without the need for additional insertion of the eel.

BRAWO® Pico stands for maximum flexibility and is perfectly matched to the installation of the BRAWOLINER® product line.



LED head



Accessories



Control box

BRAWO® PICO – SMALL BUT MIGHTY

BRAWO® Pico is the first system specifically designed for use in very small waste water pipes. These are usually found inside buildings (in-house). The innovative light curing for small nominal diameters is unique. The high installation safety and the usual high quality of BRAWO® Tech, the brand for high-quality rehabilitation equipment, is guaranteed.

Technical data for BRAWO® Pico

Field of application:	possible from DN 50 to DN 100
Range:	25 m (hose length)
Retraction speed:	from 0.1 to 2.0 m/min
Head diameter:	24 mm
Weight:	approx. 25 kg
Dimensions (L x W x H mm):	440 x 425 x 595

smart

- Intelligent LED head
- Installation log and interface to mobile terminal device (USB, W-LAN)
- Changeable hose package with LED head
- Integrated operating hours control and temperature monitoring

efficient

- Low power consumption with high light output
- 20 high-power UV LEDs with extremely high efficiency
- Saves a complete operation, only one access point necessary

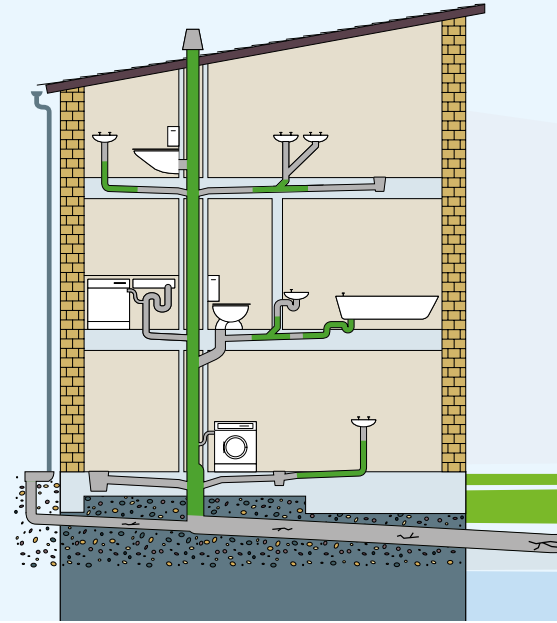
small

- Very fast curing
- Very good bend flexibility, 87° possible from DN 50 upwards
- Easy transport thanks to compact, lightweight modular design
- Extremely small construction, particularly suitable for in-house rehabilitation

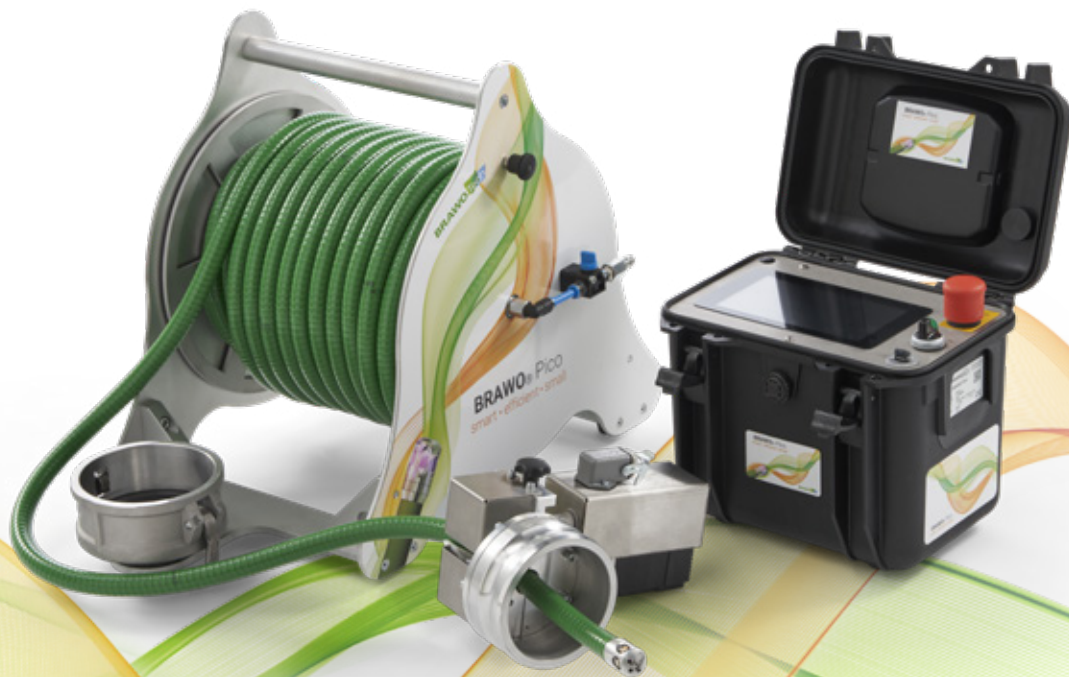
In-house rehabilitation with BRAWO[®] Pico and the in-house package from PICOTE

Now even easier in-house rehabilitation thanks to the combination of the compact BRAWO[®] Pico light curing unit with the matching PICOTE in-house package!

The rehabilitation process becomes even more flexible! All components are compatible with each other, can be easily transported and enable the application under extremely cramped conditions – optimal for the in-house application area.



BRAWO[®] Pico smart • efficient • small



In-house package from PICOTE

Midi Roller and Impregnation Table

- For use in the smallest spaces
- Compact and lightweight
- In a set, can also be used individually
- Battery-powered
- Optionally, liner holders are available in different liner sizes as a practical aid when filling the resin.



Technical data for Midi Roller

Weight:	approx. 18 kg
Dimensions (L x W x H):	486 x 360 x 265 mm
Diameters:	DN 50 – 225
Roller spacing:	4 – 14 mm
Speed:	3 – 9 m/min
Operating time (battery):	approx. 10 h
Power supply:	Battery and 230V power connection

Technical data for Impregnation Table

Weight:	approx. 36 kg
Dimensions (folded, L x W x H):	1550 x 287 x 632 mm
Dimensions (incl. midi roller, L x W x H):	1550 x 970 x 632 mm
Belt length:	1.2 m



PICOTE Cannon

- Compact, lightweight design
- Lightweight and easy to transport
- Used on construction sites where the inversion drum cannot reach
- Pressure control from 0 – 2 bar via compressed air control valve (available separately)
- Optionally, a quick-release fastener and inversion heads in various sizes are available.

Technical data for PICOTE Cannon

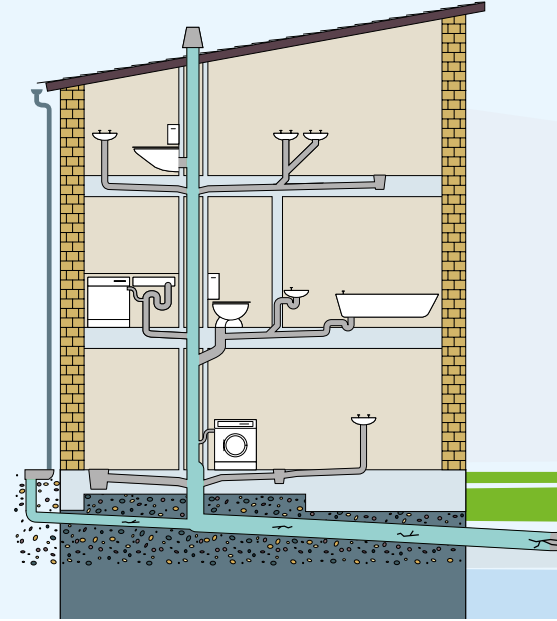
Weight:	approx. 6.2 kg
Total length:	117.5 cm
Liner capacity DN 50:	15 m
Liner capacity DN 75:	10 m
Liner capacity DN 100:	7 m

Other accessories

Open end liner and end cap installation aids

- Steel tie gun and stainless steel cable ties for preparation purposes
- Gluing tools for various liner sizes and adhesives
- Compressed air control valve

Rehabilitation with BRAWO® Magnavity SX



60 m range

BRAWO® Magnavity **sx**
smart • efficient • strong

CE
compliant +
NRTL
certified



SAVE TIME AND EFFORT

The innovative and unique LED heads enable simultaneous retraction with inversion of the liner. Curing is thus carried out immediately after installation of the liner – without the need for additional insertion of the eel.

BRAWO® Magnavity SX stands for maximum flexibility and is perfectly matched to the installation of the BRAWOLINER® product line.



LIGHT CURING THE SMART WAY

Experience fast, reliable and, above all, smart light curing with BRAWO® Magnavity SX. Guaranteed with the usual installation safety and high quality from BRAWO® Tech.

Technical data for BRAWO® Magnavity SX

Field of application:	Possible from DN 70 to DN 300
Range:	60 m (hose length)
Retraction speed:	from 0.1 to 2.0 m/min
Nano head diameter:	45 mm
Mega head diameter:	80 mm
Weight:	70 kg
Dimensions (L x W x H mm):	735 x 490 x 975

smart

- Intelligent LED heads with integrated magnetic coupling for electromagnetic remote unlocking
- Installation log and interface to mobile terminal device (USB, W-LAN)
- Reversible dual camera system
- Exchangeable LED heads with integrated operating hours monitoring
- Plug & Play: automatic detection of the inserted LED head

efficient

- Low power consumption with high light output
- 96 / 192 high-power UV LEDs with extremely high efficiency
- Saves a complete operation
- "Turtle" function for safe curing in the inlet area

powerful

- Very fast curing
- Very good bend flexibility, 87° possible from DN 100 upwards
- Easy transport thanks to modular, lightweight construction

Hot water curing

Heat curing with water



BRAWO® HotBox HQ

The BRAWO® HotBox HQ is a diesel-powered continuous heater specially designed for domestic sewer rehabilitation. Thanks to the high heating output, up to 3000 litres of water can be heated per hour. The mobile unit can be easily transported and can be operated outdoors close to the rehabilitation site.

Benefits of the BRAWO® HotBox HQ

- Diesel-powered continuous heater
- Mobile heater ➤ Water capacity up to 3000 l/h
- Temperature up to 80 °C
- 2 water hoses each 10 m long

Technical data for BRAWO® HotBox HQ

Voltage:	230 V/50 Hz
Water flow rate (min./max.):	1800/3000 l/h
Filling capacity at 50 °C:	1380 l/h
Temperature:	up to 80 °C
Heating capacity:	60 kW
Dimensions (L x W x H mm):	830 x 455 x 760
Weight:	85 kg
Max. Operating pressure:	20 bar



BRAWO® HotBox VHQ

The BRAWO® HotBox VHQ is a diesel-powered continuous heater specially designed for domestic sewer rehabilitation. It impresses with a particularly fast heating up time thanks to its heat output of over 90 kW.

Benefits of the BRAWO® HotBox VHQ

- Diesel-operated continuous heater
- Mobile heater ➤ Water capacity up to 3000 l/h
- Temperature up to 80 °C
- 2 water hoses each 10 m long
- fast heating up time: 1800 l/h filling capacity at 50 °C

Technical data for BRAWO® HotBox VHQ

Voltage:	230 V/50 Hz
Water flow rate (min./max.):	1800/3000 l/h
Filling capacity at 50 °C:	1800 l/h
Temperature:	up to 80 °C
Heating capacity:	90 kW
Dimensions (L x W x H mm):	840 x 650 x 960
Weight:	105 kg
Max. Operating pressure:	20 bar

Accessories

BRAWO® Circulation Pumps

Speed up the rehabilitation process with a BRAWO® Circulation Pump



BRAWO® ZP HP 1500

BRAWO® ZP Basic 840

BRAWO® Circulation Pumps HP 1500 and Basic 840

During heat curing, the BRAWO® HotBox HQ/ BRAWO® HotBox VHQ is connected to the inversion drum and hot water is fed into the liner. A special pump designed for use with hot water ensures the necessary circulation between the liner and BRAWO® HotBox HQ/ BRAWO® HotBox VHQ.

Benefits of the BRAWO® Circulation Pumps

- Increase safety during liner installation thanks to faster and more even heat distribution
- High cost-effectiveness due to short curing time

Technical data for the BRAWO® Circulation Pumps

	HP 1500	Basic 840
Weight	24 kg	15 kg
Dimensions (L x W x H)	195 x 541 x 226 mm	208 x 419 x 216 mm
Voltage	230 V	230 V
Rated power at 50 Hz	1.5 kW	0.88 kW
Delivery rate HA	4800 l/h	4080 l/h
Pumping capacity in conjunction with BRAWO® HotBox HQ	approx. 50 l/min.	approx. 30 l/min.

Hose set (water)

- 2 x 10 m and 1 x 2 m water hoses with GEKA couplings



Steam curing



Heat curing with steam

In addition to curing resin-impregnated liners with hot water, steam curing has also become established in domestic sewer rehabilitation. Especially for the rehabilitation of downpipes, steam curing offers major advantages.



BRAWO® SteamGenerator ULX50 Diesel

The new BRAWO® SteamGenerator ULX50 Diesel is characterised in particular by its low weight and mobility – it can be used flexibly on the construction site without any problems.

Benefits of BRAWO® SteamGenerator ULX50 Diesel

- Diesel-powered continuous heater
- Mobile heating unit
- Temperature up to 120 °C
- Short heating up time of 2 - 3 minutes
- Optionally available: water softener and replacement cartridges
- Easy to maintain and repair thanks to large service doors
- User-friendly thanks to digital display with error code display
- Operating hours display
- larger tank (diesel & water 36l with level indicator)
- secure stand thanks to 4 wheels, 2 x lockable and 2 x with casters

Technical data

BRAWO® SteamGenerator ULX50 Diesel

Amount of steam:	50-100 kg/h
Steam capacity:	29000 W
Steam pressure:	9 bar
Steam temperature:	approx. 120 °C
Weight:	93 kg
Heating capacity:	up to 30 kW
Dimensions (L x W x H mm):	1110 x 650 x 900



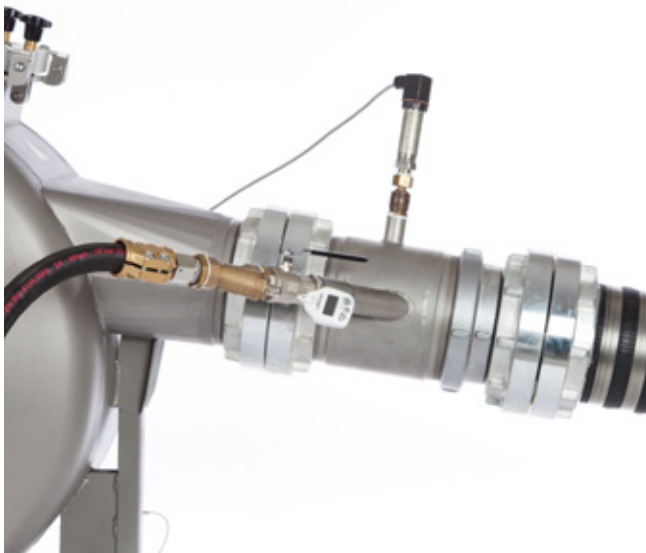
BRAWO® Control UL

- Manual control unit for regulating the curing pressure and curing temperature

Steam curing

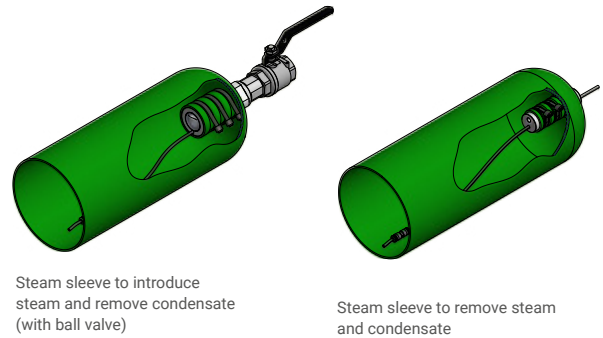


Accessories



Steam Connection Adapter

- Enables use in combination with the inversion drum



Steam sleeve to introduce steam and remove condensate (with ball valve)

Steam sleeve to remove steam and condensate



BRAWO® Steam Sleeves

- Prevents condensation from collecting in the liner and enables even temperature distribution, even in the base area
- The integrated hose enables the water to be transported away in vertical and horizontal pipes



Steam Hose Extension (20 m)

- Including double nipple for connection with steam hoses from basic set



Hose set (20 m)

- 2 x 5 m, 1 x 10 m hoses and couplings for connecting all required equipment components

BRAWO[®] curing

All devices at a glance



BRAWO[®] Pico



BRAWO[®] Magnavity SX



BRAWO[®] HotBox HQ



BRAWO[®] HotBox VHQ



BRAWO[®] SteamGenerator ULX50 Diesel



BRAWO[®] PressureControl SP



Medium	Maximum power	Water flow rate	Maximum temperature	Main area of application	Vertical in buildings ²⁾	Horizontal in buildings ⁴⁾	Horizontal underground ⁵⁾
LIGHT							
BRAWO® Pico 	700 W/ electrical	-/-	-/-	Small waste water pipes (mostly inside buildings)	max. 25 m	approx. 25 m	approx. 25 m
BRAWO® Magnavity SX 	1200 W/ electrical	-/-	-/-	Buried pipes and underground pipes as well as internal pipes	max. 60 m	approx. 60 m	approx. 60 m
HOT WATER							
BRAWO® HotBox HQ 	60 kW/ diesel	approx. 1800 l/h to 3000 l/h (55 °C)	up to 80 °C/ 0.3 bar	Horizontal pipes	max. 4 to 5 m (drop) ³⁾	approx. 50 m (50 °C)	approx. 50 m (50 °C)
BRAWO® HotBox VHQ 	90 kW/ diesel	approx. 1800 l/h to 3000 l/h (55 °C)	up to 80 °C/ 0.3 bar	Horizontal pipes	max. 4 to 5 m (drop) ³⁾	approx. 50 m (50 °C)	approx. 50 m (50 °C)
STEAM							
BRAWO® SteamGenerator ULX50 Diesel 	30 kW/ diesel	approx. 50 kg/hour (100 °C)	120 °C/ 5.0 bar	Vertical pipes	approx. 40 to 50 m (70 °C)	approx. 50 m (70 °C)	approx. 25 m (50 °C)
AMBIENT TEMPERATURE							
BRAWO® PressureControl SP 	-/-	-/-	-/-	Connection collars	-/-	-/-	-/-

1) All figures are approximate. Deviations depending on ambient conditions are possible. 2) DN 125, ambient temperature 20 °C 3) Vertical pipes or pipes with large height differences between start and end. The inherent weight of the water (hydrostatic water column) leads to an additional increase in internal pressure (0.1 bar per metre of water column) in the deepest area of the BRAWOLINER®. Water filling of pipes with large height differences is therefore only possible to a limited extent. Observe the maximum pressure of the BRAWOLINER® of 0.8 bar. 4) DN 100, ambient temperature 20 °C 5) DN 150, ambient temperature 10 °C, no groundwater present 6) A compressor is required for the use of SteamGenerator ULX50 Diesel and Pressure Control SP.

BRAWO® VortexCutter

With the BRAWO® VortexCutter, inlets in diameters from DN 100 to DN 300 can be opened easily, quickly, reliably and particularly economically at all connection angles.



BRAWO® VortexCutter

The cutter consists of a powerful 230 V drive unit with a flexible shaft and an extensive tool package. The BRAWO® VortexCutter can open an inlet in less than 10 minutes even in the case of bends and dimensional changes. The low investment costs and minimal tooling/cleaning times also contribute to the particular economic efficiency of the cutter.

Benefits of the BRAWO® VortexCutter

Particularly economical

- Fast and reliable opening of inlets
- Low acquisition costs
- Long-lasting quality
- Electrically operated, 230 V mains plug (400 V)
- No compressor required

Reliable in small diameters

- DN 100 to DN 300
- For multiple bends and dimensional changes
- Suitable for all pipe materials and connection angles

User-friendly

- Easy handling
- Compact and easy to transport

Working with the BRAWO® VortexCutter

To open an inlet, a drill head is first inserted into the inlet pipe and an opening is drilled in the closed inlet.

A tool carrier fitted with grinding panels is then inserted through this. The rotation of the tool presses the grinding panels against the pipe wall and grinds the inlet free.

The flexible sliding shaft can be pushed through several bends to the point of use. Dimensional changes are also no problem.



The BRAWO® VortexCutter series:

Three professionals at a glance:

BRAWO® VortexCutter SuperMidi

The BRAWO® VortexCutter SuperMidi can be used to open inlets from DN 100 to DN 150. The working length is 20 metres.

BRAWO® VortexCutter Maxi

The VortexCutter Maxi opens inlets from DN 100 to DN 200. The powerful 230 V motor enables excellent power transmission and the 30 metre long shaft extends the reach of the device.

BRAWO® VortexCutter MaxiPowerPlus

The most powerful device in the series. It opens inlets from DN 100 to DN 300 and is operated with a high voltage current (400V). The working length is 20 metres.



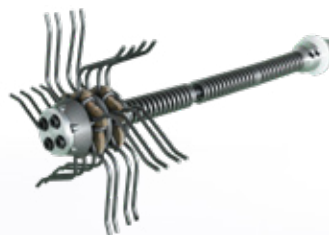
Technical data for the BRAWO® VortexCutter series

Designation	Diameter range	Reach	Shaft diameter	Weight
SuperMidi	DN 100-150	20 m	12 mm	50 kg
Maxi	DN 100-200	30 m	12 mm	83 kg
MaxiPowerPlus	DN 100-300	20 m	18 mm	125 kg

Accessories



Cyclone pipe cleaning chain



Smart Spider cleaning attachment

Vortex drill head



Holder



Milling panel with quick coupling



End cap with drill hole



Milling tool complete

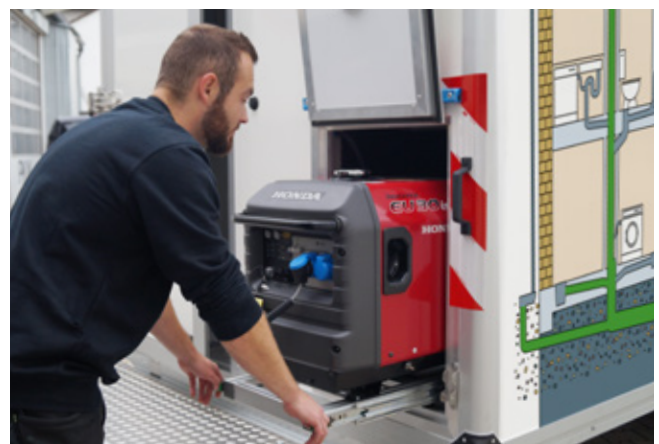
BRAWO® Rehabilitation Vehicles

The BRAWO® Tech rehabilitation vehicles offer an optimum working environment for every rehabilitation team. The ergonomic arrangement of the impregnation unit, climatic controlled cabinet and work surface makes work much easier. Shelves and storage options ensure that tools, machines and consumables can be stored safely for transport.



Professional configuration of rehabilitation trailers

- All rehabilitation vehicles are planned in consultation with the customer. In this way, you get a very realistic impression of the subsequent configuration in advance.
- Particular attention is paid to optimising the loading area and weight distribution.
- The vehicles are built by specially qualified employees in our in-house machine and plant construction department.
- Ergonomic planning, top quality workmanship and comprehensive service are a matter of course.
- The entire construction, electrical installation and all appliances are professionally approved and comply with CE directives.



BRAWO® Vehicle Equipment



BRAWO® MoCli - Free-standing climatic controlled chamber with temperature control for installation in the rehabilitation vehicle or trailer. It is ideal for tempering BRAWO® resins to the correct processing temperatures.

- Changeable door hinge
- Lockable
- Free-standing installation in the vehicle possible

Technical data for BRAWO® MoCli

Weight:	60 kg
Dimensions (L x W x H):	59.7 x 65.4 x 168.4 cm
Contents:	approx. 327 l
Connection:	230 V AC, 3 A, 50 Hz
Place:	max. 6 10 kg combined containers or 75 kg resin, max. 25 kg per interlayer

Constant:

- Consistent temperature throughout the climate controlled chamber thanks to efficient air circulation
- Optimum processing temperatures of our epoxy resin systems, e.g. BRAWO® I, BRAWO® III, BRAWO® SRR

Clever:

- Heating and cooling function: additional heating elements enable climate control to a temperature of 15 °C
- Adjustable

Controlled:

- The set temperature of the refrigerator is kept within the tolerance range of +/-1 °C.



BRAWO® Rental Equipment

The BRAWO® Tech range of appliances and accessories is available to our customers among the BRAWO® Rental Equipment. React to peaks in demand by expanding your equipment quickly and flexibly.

Benefits of BRAWO® Rental Equipment

- Higher flexibility by extending the range at short notice
- Test devices before making a purchase decision
- No need for servicing or maintenance
- Transparency: simply calculate rental instalments

**WE
ARE AVAILABLE
FOR
RENT!**



With our expertise and ultimate readiness for service, we are happy to identify your particular needs.

Get in touch with us!

BRAWO® Downloads

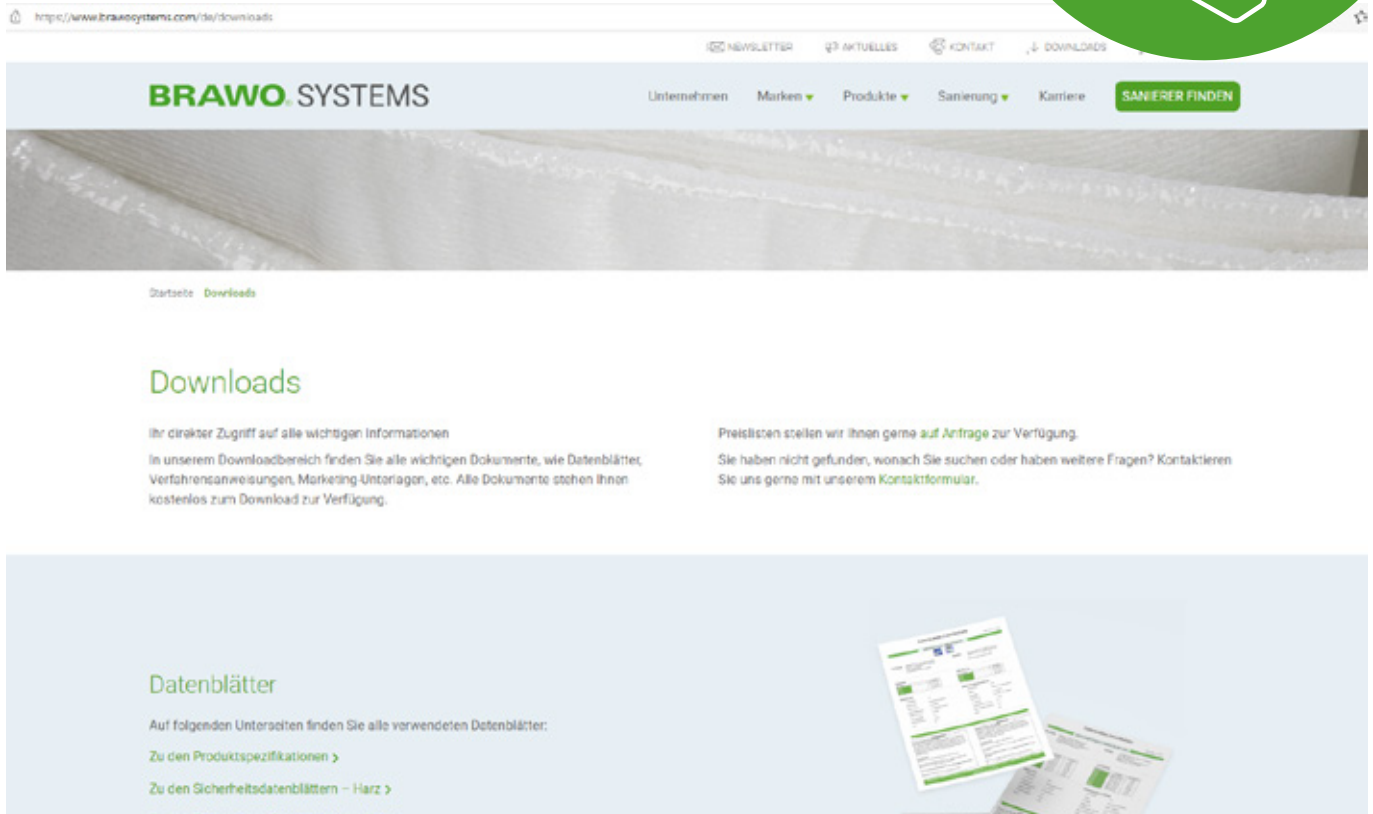
Your direct access to all important information!

In our download area you will find all important documents, such as data sheets, process instructions, marketing documents, etc. All documents are available to download free of charge.

At a glance you will find:

- Marketing documents, e.g. product catalogue, reference brochure
- Safety data sheets, technical data sheets, data sheets on product specifications, structural engineering values and resin consumption
- Process instructions for the different rehabilitation methods with the BRAWOLINER®
- Current DIBt approvals
- Independent test reports
- Installation information for BRAWOLINER®
- Templates for tender texts
- Templates for service orders

www.brawosystems.com/de/downloads



BRAWO® Academy

Training and development programme in cooperation with PICOTE INSTITUTE

Benefit from expert knowledge

At the BRAWO® Academy, the training and development centre of BRAWO® SYSTEMS, you can expand your expertise. Book a training course with BRAWO® SYSTEMS, the long-standing expert in property and building drainage! On our courses you will gain insights into all four curing methods – air, water, steam and light.

More information

about the services offered by
BRAWO® Academy
you can find here:

[brawosystems.com/en/brands/
brawo-academy](http://brawosystems.com/en/brands/brawo-academy)



Learn directly on the equipment

You will learn the rehabilitation process directly on the required equipment. You will benefit from direct, personal advice from our highly qualified experts on how best to carry out rehabilitation work and which machines you really need.



The most important aspects in theory and practice

On all our courses, the basic principles are taught in theory and practice. Participants train how to handle the BRAWOLINER®, the various resins and the installation equipment. Different starting situations and requirements are presented and discussed. The preparation and follow-up of the BRAWOLINER® installation is also part of the training courses. You will receive tips and tricks for your work on your construction sites.



Concentrated expertise

The BRAWO® Academy cooperates with the PICOTE INSTITUTE in its programme of courses. As a result, the many years of experience in rehabilitation and the preparation and follow-up of rehabilitation measures of the participating companies, BRAWO® SYSTEMS and PICOTE GROUP, are brought together for you. You benefit twofold.

Your wishes at the focal point

On all the courses, we address your wishes and ideas. You can participate with up to four employees.



Do you already know about our online seminars?

Get an initial insight into the rehabilitation of the building and property drainage free of charge.

brawosystems.com/de/aktuelles/events



BRAWO® SYSTEMS – your competent partner

Would you like more information about our range, a live demo at our training centre or an individual quotation?

Please get in touch with us:

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Telephone: +49 631 205 61-100
Email: info@brawosystems.com
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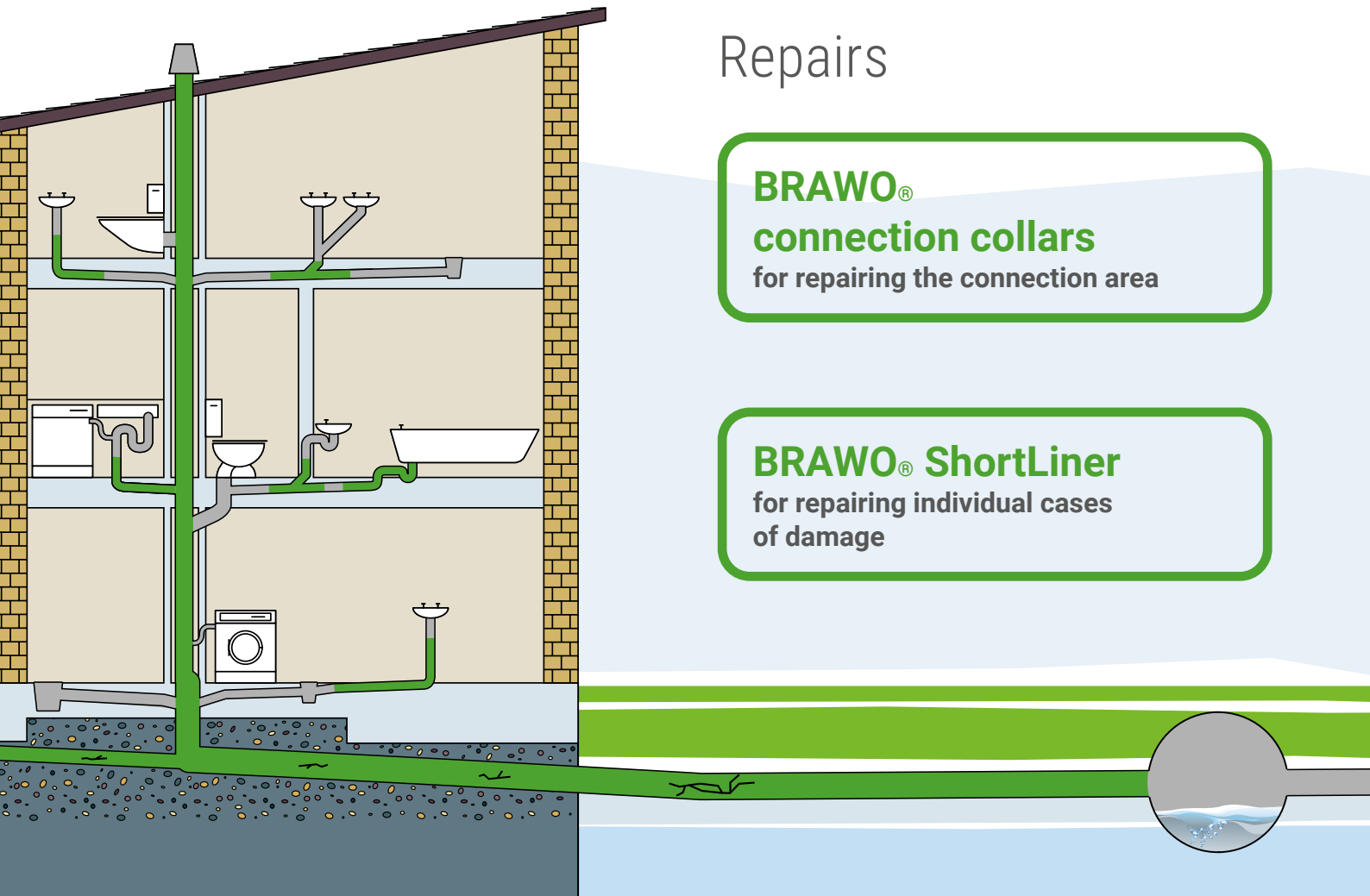
Renovation

BRAWOLINER®
for the reliable renovation of pipes

Repairs

BRAWO®
connection collars
for repairing the connection area

BRAWO® ShortLiner
for repairing individual cases
of damage



BRAWO® SYSTEMS

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