



OC MECHANICAL SERVICES



“Your one stop shop for all your Drain Cleaning

IBAK



IMS
Robotics



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About Us

O'C Mechanical Services at your service for all your drain cleaning requirements from supply of the latest drain cleaning equipment, repairs, demonstrations, in-house training to advise on your drain cleaning equipment queries.

O'C Mechanical Services has been at the forefront of the drain cleaning industry since it was established several years ago. We are an innovative company which guarantee all our customers 100% dedication, reliability and we have been proven to be extremely cost effective. Our customer's productivity is our main priority. Staff at O'C Mechanical Services, covering administration, engineering, parts, services and sales are dedicated in providing an impressive range of quality products and will be delighted to provide you with any assistance that you may require.

With our fully equipped modern workshop we carry out repairs and services to all types of drain cleaning vehicles and drain cleaning equipment from the various Jets/Vacs, van packs, vac tankers, vac pumps, jetting nozzles etc. We aim to have a very efficient and quick turn around on all repairs and services. For our customer's convenience we also offer onsite repairs.



Services



PRODUCTS:

We stock a wide range of parts and products for the majority of drain cleaning vehicles. It is our policy that if we don't have a particular product or part that you require in stock then we will save you the time and hassle and source it for you ourselves. We pride ourselves in our fast and efficient stock turnaround and in the majority of cases being able to supply you with your product the very next day.

We believe in value for money, it is our goal to supply the most technologically advanced equipment available to the Drain cleaning industry at affordable prices. We are passionate about our work and consider ourselves as a one stop shop for all your drain cleaning needs, from state of the art vehicles to camera systems to drain dye. We cater for all aspects of the industry



SERVICE:

O'C Mechanical Services can provide scheduled service contracts to help boost your productivity and lower downtime of your equipment. We can build the contract around your requirements to maximise efficiency and guarantee customer satisfaction. For your convenience, we have a service vehicle that can travel to your premises to carry out all the work.

With our fully equipped modern workshop we carry out repairs and services to all types of Drain Cleaning Vehicles and the various Jet/Vacs, Van Packs, Vac Tankers, Vac Pumps, Jetting Pumps etc. We aim to have a very efficient and quick turn around on all repairs and services. O'C Mechanical Services also offers a call out service where we are equipped to carry out on site repair and service.

We also offer service schedule packages, where our qualified staff travel to your premises and service vehicles and equipment on-site on scheduled dates throughout the year. This reduces downtime / breakdowns and cost incurred due to both. Custom Service packages can tailored to suit your requirements. Please contact for more information.



REPAIR:

With our fully equipped modern workshop we carry out repairs and services to all types of Drain Cleaning Vehicles and the various Jet/Vacs, Van Packs, Vac Tankers, Vac Pumps, Jetting Pumps etc. It is our priority to have an exceptionally quick turn around on all repairs to ensure the minimum downtime is incurred. O'C Mechanical Services also offers a call out service where we are equipped to carry out on site repairs for your convenience.



TRAINING:

We offer experienced operator training on the majority of drain cleaning machines. From safe operation of the machine to general maintenance of the machine. Specialised training is provided in the following areas Jet Vacs, Van Packs, Vacuum Tankers to list just a few.



Pictured: Damien O'Connor (O'C Mechanical Services) over in IMS Robotics factory in Dresden, Germany. O'C Mechanical Services prides itself with keep up to date with all new advancements in technology.

The Kroll product range covers a large variety of types of waste disposal and cleaning vehicles for sewer cleaning and the disposal of wet and hazardous materials. If a client's special request cannot be found in the standard range of KROLL vehicles, then O'C Mechanical Services in conjunction with the engineers at KROLL will leave no stone unturned to try to offer the client a customised solution just for his / her requirements.

Kroll are a German based company who are striving to become the market leader in the production of Drain Cleaning Vehicles by producing state of the art Recyclers, Jet/vacs, Vac tankers & Van packs to name but a few.

O'C Mechanical Services have been the Irish agent for Kroll for Several years, supplying and servicing Kroll Vehicles all over Ireland and some in the UK.

We stock a wide variety of Kroll parts in our stores in Tipperary, if we don't have a particular item in stock then we aim to get the item delivered to us as quickly as possible.



HIG PRESSURE RINSING & SUCTION VEHICLES with tipping discharge

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Surface cleaning
- cleaning inside of tanks
- Industrial cleaning
- Water milling
- Cesspit emptying
- Landfill water disposal
- Gully cleaning
- Oil, fuel and grease separator/filter cleaning
- Transport of dangerous goods (with optional ADR equipment)

Features

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Discharge by rear tipping
- Multiple compartment system (optional)
- Combined operation of suction and high-pressure rinsing
- Fixed water compartment or variable water compartment

Tanks

- Sludge compartment size: on customer request
- Up to 20000 litre air volume
- Sludge compartment format: cylindrical
- Material: Steel or stainless steel
- With fully opening closure hatch
- Water compartment prefabricated in tank, in piston entrance or as water bags on the side
- Contents level display via inspection glass or floating display with scale

Closure hatch

- can be opened over the whole cross-section,
- Torispherical head
- Material: Steel or stainless steel
- opens hydraulically upwards
- Central locking closure hatch can be operated pneumatically, hydraulically or by hand

Vacuum pump

- Vacuum pump make according to customer demand (e.g.: CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Quantity: 1 or 2 pieces
- Suction capacity: up to 3000 m³/h
- Mechanical or hydraulic power from auxiliary drive of the chassis or via separate engine

Boom

- Hose storage cartridge boom or
- Hose storage cartridge with telescopic boom or
- Hose storage cartridge with simultaneous telescopic boom or
- Hose storage cartridge with telescopic HP reel or
- Hose storage cartridge with swivel head boom or
- Suction hose reel with integrated suction hose boom



High pressure pump

- High pressure pump, make according to customer demand (URACA, Hammelmann, Speck, Woma, KAMAT, Pratissoli etc.)
- Quantity: 1 or 2 pieces
- Rinse capacity: up to 600 l/min at up to 400 bar
- Pneumatic pressure regulating valve
- Pressure speed control
- Power from auxiliary drive of the chassis or via separate engine

High pressure system

- Large high pressure rinsing reel with continuous hydraulic power in both directions;
- Large high pressure rinsing reel fixed or swivelling built on closure hatch or on trailer, partially telescopic
- Large high pressure rinsing reel designed for DN 19, DN 25, DN 32, DN 38 HP hose, up to 360 m, in special models also up to 500 m
- Small high pressure rinsing reel operated hydraulically or manually, designed for 40 to 120 m DN 13 HP hose

Control

- Logo control
- CAN-BUS control
- Pressure speed regulation
- Radio remote control,
- central controls in stainless steel housing

Features

- Discharge apron made from aluminium or stainless steel
- Toolboxes or hose boxes on left and right side, made from aluminium or sheets of stainless steel
- Additional toolbox
- High pressure/sewer rinsing hoses
- Water level warning system,
- Residual water emptying system
- Vice
- Spraying gun/wash lance
- Halogen working lights
- etc.

Options

- Air compressor,
- Hydraulic winch
- Reversing camera system
- Metering system
- Heated wardrobe
- Full cladding
- Hand washing system with cold water or cold/warm water
- Billboards
- Odour neutralisation system
- Deep suction facilities
- Winter heating
- Anti aerosol
- Nozzle set
- etc

HIGH PRESSURE RINSING & SUCTION VEHICLES with piston discharge

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Surface cleaning
- Cleaning inside of tanks
- Industrial cleaning
- Water milling
- Cesspit emptying
- Landfill water disposal
- Gully cleaning
- Oil, fuel and grease separator/filter cleaning
- Transport of dangerous goods (with optional ADR equipment)

Feature

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Discharge by piston discharge (pneumatic or drag piston)
- Multiple compartment system (optional)
- Combined operation of suction and high-pressure rinsing
- fixed water compartment or variable water compartment

Tanks

- Sludge compartment size: on customer request
- up to 20000 litre air volume
- Sludge compartment format: cylindrical
- Material: Steel or stainless steel
- With fully opening closure hatch
- Water compartment prefabricated in tank, in piston entrance or as water bags on the side
- Contents level display via inspection glass or floating display with scale

Closure hatch

- can be opened over the whole cross-section,
- Torispherical head
- Material: Steel or stainless steel
- opens hydraulically upwards
- Central locking closure hatch can be operated pneumatically, hydraulically or by hand

Vacuum pump

- Vacuum pump make according to customer demand (e.g.: CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Quantity: 1 or 2 pieces
- Suction capacity: up to 4000 m³/h
- Mechanical or hydraulic power from auxiliary drive of the chassis or via separate engine
- Optionally with: Suction hose reel, boom, cassette or cassette boom

Boom

- Hose storage cartridge boom or
- Hose storage cartridge with telescopic boom or
- Hose storage cartridge with simultaneous telescopic boom or
- Hose storage cartridge with telescopic HP reel or
- Hose storage cartridge with swivel head boom or
- Suction hose reel with integrated suction hose boom



High pressure pump

- High pressure pump, make according to customer demand (URACA, Hammelmann, Speck, Woma, KAMAT, Pratissoli etc.)
- Quantity: 1 or 2 pieces
- Rinse capacity: up to 600 l/min at up to 400 bar
- pneumatic pressure regulating valve
- Pressure speed control
- Power from auxiliary drive of the chassis or via separate engine

High pressure system

- Large high pressure rinsing reel with continuous hydraulic power in both directions;
- Large high pressure rinsing reel fixed or swivelling built on closure hatch or on trailer, partially telescopic
- Large high pressure rinsing reel designed for DN 19, DN 25, DN 32, DN 38 HP hose, up to 360 m, in special models also up to 500 m
- Small high pressure rinsing reel operated hydraulically or manually, designed for 40 to 120 m DN 13 HP hose

Control

- Logo control
- CAN-BUS control
- Pressure speed regulation
- Radio remote control,
- central controls in stainless steel housing

Features

- Discharge apron made from aluminium or stainless steel
- Toolboxes or hose boxes on left and right side, made from aluminium or sheets of stainless steel
- Additional toolbox
- High pressure/sewer rinsing hoses
- Water level warning system
- Residual water emptying system
- Vice
- Spraying gun/wash lance
- Halogen working lights

Options

- Air compressor,
- Hydraulic winch
- Reversing camera system
- Metering system
- Heated wardrobe
- Full cladding
- Hand washing system with cold water or cold/warm water
- Billboards
- Odour neutralisation system
- Deep suction facilities
- Winter heating
- Anti aerosol
- Nozzle set

HIGH PRESSURE RINSING SUPERSTRUCTURE

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Surface cleaning
- Cleaning inside of tanks
- Industrial cleaning
- Water milling

Water tank

- Size: on customer request up to 20000 litres
- Form: cylindrical, oval, square
- Material: Steel, stainless steel, plastic with manhole
- Water filling facilities
- Contents level display via inspection glass
- Residue emptying etc.



High pressure pump

- High pressure pump, make according to customer demand (URACA, Hammelmann, Speck, Woma, KAMAT, Pratissoli etc.)
- Quantity: 1 or 2 pieces
- Rinse capacity: up to 600 l/min at up to 250 bar
- pneumatic pressure regulating valve,
- Pressure speed control
- Power from auxiliary drive of the chassis or via separate engine

High pressure system

- Large high pressure rinsing reel with continuous hydraulic drive in both directions;
- Large high pressure rinsing reel fixed or swivelling built on closure base or on trailer, partially telescopic
- Large high pressure rinsing reel designed for DN 19, DN 25, DN 32, DN 38 HP hose, up to 360 m, in special models also up to 500 m
- Small high pressure rinsing reel operated hydraulically or manually, designed for 40 to 120 m DN 13 HP hose

Equipment

- Toolboxes or hose boxes on left and right side, made from aluminium or stainless steel sheets
- Additional toolbox
- High-pressure/sewer rinsing hoses
- Water level warning system
- Residual water emptying system
- Spraying gun/Wash lance
- Radio remote control
- Halogen working lights
- Air compressor
- Central controls in stainless steel housing

Options

- | | |
|---------------------------|--|
| ■ Hydraulic winch | ■ Full cladding |
| ■ Reversing camera system | ■ Hand washing system with cold water or cold/warm water |
| ■ Metering system | ■ Winter heating |
| ■ Heated wardrobe | ■ Anti aerosol |
| | ■ Nozzle set |

RECycler - WRS2 HIGH PRESSURE RINSING & SUCTION VEHICLES with continuous water treatment with drag piston for sludge discharge

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Sewer cleaning (continuous) with water treatment (recycling)
- Surface cleaning
- Cleaning insides of tanks
- Industrial cleaning

Features

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Discharge by draining piston (discharge piston)
- Multiple compartment system (optional)
- Combined operation of suction and high-pressure rinsing
- fixed water compartment

Tanks

- Sludge compartment size: on customer request
- up to 20000 litre air volume
- Sludge compartment format: cylindrical
- Material: Steel or stainless steel
- With fully opening closure hatch
- Water compartment prefabricated in tank, in piston entrance or as water bags on the side
- Contents display indicator via inspection glass or floating display with scale

Closure hatch

- can be opened over the whole cross-section,
- Torispherical head
- Material: Steel or stainless steel
- opens hydraulically upwards
- Central locking closure hatch can be operated pneumatically, hydraulically or by hand

Vacuum pump

- Vacuum pump make according to customer demand (e.g.: CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Quantity: 1 or 2 pieces
- Suction capacity: up to 4000 m³/h
- Mechanical or hydraulic power from auxiliary drive of the chassis or via separate engine
- Optionally with: Suction hose reel, boom, cassette or cassette boom

Vacuum system

- Suction hose cartridge or
- Suction hose reel or
- Telescopic boom or
- Suction hose cartridge with telescopic boom or
- Suction hose cartridge with swivel head boom or
- Simultaneous boom



High pressure pump

- High pressure pump, make according to customer demand (URACA, Hammelmann, Speck, Woma, KAMAT, Pratisoli etc.)
- Quantity: 1 or 2 pieces
- Rinse capacity: up to 600 litres/minute at up to 400 bar
- Pneumatic pressure regulating valve,
- Pressure speed control
- Power from auxiliary drive of the chassis or via separate engine

High pressure system

- Large high pressure rinsing reel with continuous hydraulic power in both directions;
- Large high pressure rinsing reel fixed or swivelling built on closure hatch or on trailer, partially telescopic
- Large high pressure rinsing reel designed for DN 19, DN 25, DN 32, DN 38 HP hose, up to 360 m, in special models also up to 500 m
- Small high pressure rinsing reel operated hydraulically or manually, designed for 40 to 120 m DN 13 HP hose

Water treatment

- continuous automatically working waste water treatment
- thereby continuous suction-rinsing operation on-site
- no need for trips to freshwater tanks
- 8-stage water treatment system via displacement, coarse filter, pre-filter, waste water pump, cyclones, cascade, settling tanks etc.

Control

- Logo control
- CAN-BUS control
- Pressure speed regulation
- Radio remote control,
- Central operating controls in stainless steel housing

Equipment

- Discharge apron made from aluminium or stainless steel
- Toolboxes or hose boxes on left and right side, made from aluminium or sheets of stainless steel
- Additional toolbox
- High pressure/sewer rinsing hoses
- Water level warning system,
- Residual water emptying system
- Vice
- Spraying gun/wash lance
- Halogen working lights
- etc.

Options

- | | |
|--|-------------------------------|
| ■ Air compressor, | ■ Odour neutralisation system |
| ■ Hydraulic winch | ■ Deep suction facilities |
| ■ Reversing camera system | ■ Winter heating |
| ■ Metering system | ■ Anti aerosol |
| ■ Heated wardrobe | ■ Nozzle set |
| ■ Full cladding | |
| ■ Hand washing system with cold water or cold/warm water | |
| ■ Billboards | |

RECYCLER - WRS3 HIGH PRESSURE RINSING & SUCTION VEHICLES with continuous water treatment with pneumatic piston discharge

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Sewer cleaning (continuous) with water treatment (recycling)
- Surface cleaning
- Cleaning insides of tanks
- Industrial cleaning

Features

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Discharge by pneumatic draining piston (expulsion piston)
- Multiple compartment system (optional)
- Combined operation of suction and high-pressure rinsing
- Variable water compartment

Tanks

- Sludge compartment size: according to customer request
- up to 20,000 litre air volume
- Sludge compartment format: cylindrical
- Material: Steel or stainless steel
- With fully opening closure hatch
- Water compartment prefabricated in tank, in piston entrance or as water bags on the side
- Contents level display via inspection glass or floating display with scale

Closure hatch

- can be opened over the whole cross-section,
- Torispherical head
- Material: Steel or stainless steel
- opens hydraulically upwards
- Central locking closure hatch can be operated pneumatically, hydraulically or by hand

Vacuum pump

- Vacuum pump make according to customer demand (e.g.: CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Quantity: 1 or 2 pieces
- Suction capacity: up to 4000 m³/h
- Mechanical or hydraulic power from auxiliary drive of the chassis or via separate engine
- Optionally with: Suction hose reel, boom, cassette or cassette boom

Vacuum system

- Suction hose cartridge or
- Suction hose reel or
- Telescopic boom or
- Suction hose cartridge with telescopic boom or
- Suction hose cartridge with swivel head boom or
- Simultaneous boom



High pressure pump

- High pressure pump, make according to customer demand (URACA, Hammelmann, Speck, Woma, KAMAT, Pratisoli etc.)
- Quantity: 1 or 2 pieces
- Rinse capacity: up to 600 litres/minute at up to 400 bar
- Pneumatic pressure regulating valve,
- Pressure speed control
- Power from auxiliary drive of the chassis or via separate engine

High pressure system

- Large high pressure rinsing reel with continuous hydraulic power in both directions;
- Large high pressure rinsing reel fixed or swivelling built on closure base or on trailer, partially telescopic
- Large high pressure rinsing reel designed for DN 19, DN 25, DN 32, DN 38 HP hose, up to 360 m, in special models also up to 500 m
- Small high pressure rinsing reel operated hydraulically or by hand, designed for 40 to 120 m DN 13 HP hose

Water treatment

- continuous automatically working waste water treatment
- thereby continuous suction-rinsing operation on-site
- no need for trips to freshwater tanks
- 8-stage water treatment system via displacement, coarse filter, pre-filter, waste water pump, cyclones, cascade, settling tanks etc.

Control

- Logo control
- CAN-BUS control
- Pressure speed regulation
- Radio remote control,
- Central controls in stainless steel housing

Equipment

- Discharge apron made from aluminium or stainless steel
- Toolboxes or hose boxes on left and right side, made from aluminium or sheets of stainless steel
- Additional toolbox
- High pressure/sewer rinsing hoses
- Water level warning system,
- Residual water emptying system
- Vice
- Spraying gun/wash lance
- Halogen working lights

Options

- | | |
|--|---------------------------|
| ■ Air compressor | ■ Deep suction facilities |
| ■ Hydraulic winch | ■ Winter heating |
| ■ Reversing camera system | ■ Anti aerosol |
| ■ Metering system | ■ Nozzle set |
| ■ Heated wardrobe | |
| ■ Full cladding | |
| ■ Hand washing system with cold water or cold/warm water | |
| ■ Billboards | |
| ■ Odour neutralisation system | |

RECYCLER - WRS4 HIGH PRESSURE RINSING & SUCTION VEHICLES
with continuous water treatment
with pneumatic piston discharge
with water bag calming zones

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Sewer cleaning (continuous) with water treatment (recycling)
- Surface cleaning
- Cleaning insides of tanks
- Industrial cleaning

Features

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Discharge by pneumatic discharge piston (expulsion piston)
- Multiple compartment system (optional)
- Combined operation of suction and high-pressure rinsing
- fixed and variable water compartments

Tanks

- Sludge compartment size: according to customer request
- up to 20000 litre air volume
- Sludge compartment format: cylindrical
- Material: Steel or stainless steel
- With fully opening closure hatch
- Water compartment prefabricated in tank, in piston entrance and as water bags on the side
- Contents level display via inspection glass or floating display with scale

Closure hatch

- can be opened over the whole cross-section,
- Torispherical head
- Material: Steel or stainless steel
- opens hydraulically upwards
- Central locking closure hatch can be operated pneumatically, hydraulically or by hand

Vacuum pump

- Vacuum pump make according to customer demand (e.g.: CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Quantity: 1 or 2 pieces
- Suction capacity: up to 4000 m³/h
- Mechanical or hydraulic power from auxiliary drive of the chassis or via separate engine
- Optionally with: Suction hose reel, boom, cassette or cassette boom

Vacuum system

- Suction hose cartridge or
- Suction hose reel or
- Telescopic boom or
- Suction hose cartridge with telescopic boom or
- Suction hose cartridge with swivel head boom or
- Simultaneous boom



High pressure pump

- High pressure pump, make according to customer demand (URACA, Hammelmann, Speck, Woma, KAMAT, Pratissoli etc.)
- Quantity: 1 or 2 pieces
- Rinse capacity: up to 600 litres/minute at up to 400 bar
- pneumatic pressure regulating valve,
- Pressure speed control
- Power from auxiliary drive of the chassis or via separate engine

High pressure system

- Large high pressure rinsing reel with continuous hydraulic power in both directions;
- Large high pressure rinsing reel fixed or swivelling built on closure base or on trailer, partially telescopic
- Large high pressure rinsing reel designed for DN 19, DN 25, DN 32, DN 38 HP hose, up to 360 m, in special models also up to 500 m
- Small high pressure rinsing reel operated hydraulically or by hand, designed for 40 to 120 m DN 13 HP hose

Water treatment

- continuous automatically working waste water treatment
- thereby continuous suction-rinsing operation on-site
- no need for trips to freshwater tanks
- 8-stage water treatment system via displacement, coarse filter, pre-filter, waste water pump, cyclones, cascade, settling tanks etc.

Control

- Logo control
- CAN-BUS control
- Pressure speed regulation
- Radio remote control,
- Central operating controls in stainless steel housing

Equipment

- Discharge apron made from aluminium or stainless steel
- Toolboxes or hose boxes on left and right side, made from aluminium or sheets of stainless steel
- Additional toolbox
- High pressure/sewer rinsing hoses
- Water level warning system,
- Residual water emptying system
- Vice
- Spraying gun/wash lance
- Halogen working lights

Options

- | | |
|---------------------------|--|
| ■ Air compressor, | ■ Hand washing system with cold water or cold/warm water |
| ■ Hydraulic winch | ■ Billboards |
| ■ Reversing camera system | ■ Odour neutralisation system |
| ■ Metering system | ■ Deep suction facilities |
| ■ Heated wardrobe | ■ Winter heating |
| ■ Full cladding | ■ Anti aerosol |
| | ■ Nozzle set |

RECYCLER - WRS5 HIGH PRESSURE RINSING & SUCTION VEHICLES with continuous water treatment with tipping discharge (rear tipping)

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Sewer cleaning (continuous) with water treatment (recycling)
- Surface cleaning
- Cleaning insides of tanks
- Industrial cleaning

Features

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Discharge by tipping discharge (rear tipping)
- Multiple compartment system (optional)
- Combined operation of suction and high-pressure rinsing
- Fixed water compartment

Tanks

- Sludge compartment size: on customer request
- up to 20000 litre air volume
- Sludge compartment format: cylindrical
- Material: Steel or stainless steel
- With fully opening closure hatch
- Water compartment prefabricated in tank, in piston entrance or as water bags on the side
- Contents level display via inspection glass or floating display with scale

Closure hatch

- can be opened over the whole cross-section,
- Torispherical head
- Material: Steel or stainless steel
- opens hydraulically upwards
- Central locking closure hatch can be operated pneumatically, hydraulically or by hand

Vacuum pump

- Vacuum pump make according to customer demand (e.g.: CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Quantity: 1 or 2 pieces
- Suction capacity: up to 4000 m³/h
- Mechanical or hydraulic power from auxiliary drive of the chassis or via separate engine
- Optionally with: Suction hose reel, boom, cassette or cassette boom

Vacuum system

- Suction hose cartridge or
- Suction hose reel or
- Telescopic boom or
- Suction hose cartridge with telescopic boom or
- Suction hose cartridge with swivel head boom or
- Simultaneous boom



High pressure pump

- High pressure pump, make according to customer demand (URACA, Hammelmann, Speck, Woma, KAMAT, Pratisoli etc.)
- Quantity: 1 or 2 pieces
- Rinse capacity: up to 600 litres/minute at up to 400 bar
- Pneumatic pressure regulating valve,
- Pressure speed control
- Power from auxiliary drive of the chassis or via separate engine

High pressure system

- Large high pressure rinsing reel with continuous hydraulic power in both directions;
- Large high pressure rinsing reel fixed or swivelling built on closure base or on trailer, partially telescopic
- Large high pressure rinsing reel designed for DN 19, DN 25, DN 32, DN 38 HP hose, up to 360 m, in special models also up to 500 m
- Small high pressure rinsing reel operated hydraulically or by hand, designed for 40 to 120 m DN 13 HP hose

Water treatment

- continuous automatically working waste water treatment
- thereby continuous suction-rinsing operation on-site
- No need for trips to freshwater tanks
- 8-stage water treatment systems via displacement, coarse filter, pre-filter, waste water pump, cyclones, cascade, settling tanks etc.

Control

- Logo control
- CAN-BUS control
- Pressure speed regulation
- Radio remote control,
- central controls in stainless steel housing

Equipment

- Discharge apron made from aluminium or stainless steel
- Toolboxes or hose boxes on left and right side, made from aluminium or sheets of stainless steel
- Additional toolbox
- High pressure/sewer rinsing hoses
- Water level warning system,
- Residual water emptying system
- Vice
- Spraying gun/wash lance
- Halogen working lights
- etc.

Options

- Air compressor,
- Hydraulic winch
- Reversing camera system
- Metering system
- Heated wardrobe
- Full cladding
- Hand washing system with cold water or cold/warm water
- Billboards
- Odour neutralisation system
- Deep suction facilities
- Winter heating
- Anti aerosol
- Nozzle set

TANK TRAILER

Areas of application

- Cesspit emptying
- Landfill water disposal
- Portable toilet emptying
- Transporting waste water
- Cleaning gullies
- Cleaning oil, fuel and grease separator/filter
- Transporting dangerous goods (with optional ADR equipment)
- Hydrodynamic pipe cleaning (with optional fitting of high-pressure rinsing system)

Features

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Discharge by draining piston (pneumatic or drag piston)
- Multiple compartment system (optional)
- Combined operation of suction and high-pressure rinsing (optional)
- Fixed water compartment or variable water compartment

Semi-trailer underbody

- 1 axle, 2 axle or 3 axle unit (BPW, SAF, DaimlerChrysler etc.)
- air or spring suspension
- ABS
- ASR
- Drum or disk brakes
- Telescopic support
- for 3 axle unit: 1st axle can be lifted, 3rd axle steerable



Tanks

- Sludge compartment size: according to customer demand
- up to 30000 litre air volume
- Sludge compartment format: cylindrical
- Material: Steel or stainless steel
- With manhole or fully opening closure hatch
- Water compartment (optional) up to 5000 litre air volume, steel or stainless steel prefabricated in tank, in piston entrance or as water bags on the side
- Contents display via float indicator with scale

Rear tank opening

- To be opened as manhole for cleaning opening on lower tank edge or as closure hatch over the full cross-section
- Torispherical head
- Material: Steel or stainless steel
- Closure hatch can be opened hydraulically upwards or by hand to the side
- Central locking closure hatch can be operated pneumatically or by hand

Vacuum system

- Vacuum pump according to customer demand (e.g.: CVS, Gardner-Denver-Wittig, Jurop, Samson etc.)
- Quantity: 1 piece suction performance: up to 3000 m³/h
- Mechanically or hydraulically powered
- built underneath the semi-trailer or on the traction unit
- Optionally with: Suction hose reel, boom, cassette or cassette trailer
- Suction connectors for each compartment
(optionally joined in a manifold) (optional: upper suction connector)
- Manholes on the top of the tank for each compartment
- Transport reel for up to 80 m of DN 50 suction hose
- Transport reel for up to 40 m of DN 80 suction hose

High pressure system (optional)

- High pressure pump from 30-130 l/min rinsing capacity up to 200 bar pressure (e.g. makes: URACA, Speck, Pratissoli etc.)
- Mechanical or hydraulic power
- Small high-pressure rinsing reel operated hydraulically or by hand, designed for 60 m HP DN 13 hose, optionally up to 120 m
- Contents level indicator with inspection glass

Equipment

- Lower suction connector (optional: upper suction connector)
- Discharge apron
- Toolboxes or hose boxes on left and right side, in aluminium or stainless steel
- Optional full cladding of aluminium or sheets of stainless steel, with upward opening flaps for the vacuum system under the seat
- additional toolbox
- Water level warning system
- Residual water emptying system
- Spraying gun/Wash lance
- High-pressure/Sewer rinsing hoses
- Refuse box
- Halogen working lights
- Central controls in stainless steel housing
- Vice

Options

- Manhole with access ladder and stand
- Radio remote control
- Reversing camera system
- hydraulic winch
- Hand washing system with cold water or cold/warm water
- heated wardrobe
- Full cladding
- Billboards
- Accessories
- Nozzle set
- etc.

SUCTION UNIT WITHOUT DISCHARGE SYSTEM

Operation Areas

- Sewage sludge disposal
- Landfill water disposal
- Porta jon disposal
- Waste water transport
- Cesspit cleaning
- Oil-, fuel-, and grease separator/filter cleaning
- Transport of dangerous goods classifications: 3, 5.1, 6.1, 8, 9
- Hydrodynamic tube-cleaning (with optional high pressure unit)

Features

- Discharge by free flow
- Discharge by pressurisation of vacuum pump
- Combined operation of suction and high-pressure mode (optional)
- Fixed water compartment (optional)

Tank Capacity

- Sludge volume according to customer demand
- up to 20.000 litre air volume
- cylindrical sludge compartment
- Normal steel or stainless steel
- With manhole or over the full diameter upwards operated rear door
- Water compartment (optional) up to 5.000 litres air volume, normal steel or stainless steel
- Tank level indicator with internally located float and exterior scale, design with PE-ball

Rear Door

- Hydraulically operated over the full diameter upwards
- Torispherical head
- Normal steel or stainless steel
- Central locking system, pneumatically or hand operated

Vacuum Pump

- Vacuum pump according to customer demand (e.g. CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Capacity up to 4.000 m³/h
- Mechanically oder hydraulically operated
- Optional: hose reel, suction hose cassette, telescope-hose

High Pressure Pump (Optional)

- Capacity from 30 to 130 l/min at 200 bar (e.g. Speck, URACA, Pratissoli etc.)
- Mechanically or hydraulically operated
- Small high-pressure hose reel, operated hydraulically or by hand, with 60 m hose DN 13, optional up to 120 m
- Level indicator with exterior scale



Equipment

- Lower suction connection (optional: upper suction connection)
- Discharge apron
- Tool boxes or hoses boxes on left and right hand side, in aluminium or stainless steel
- Water level warning system
- Residual water emptying system
- Spraying gun
- High pressure/suction hose reel
- Refuse box
- Halogen working lights
- Central controls in stainless steel housing
- Vice

Options

- According to ADR regulations, transport of dangerous goods classifications: 3, 5.1, 6.1, 8, 9
- Manhole with ladder and stand
- Radio remote control
- Reverse camera system
- Hydraulic winch
- Hand washing system with cold water or cold/hot water
- Heated wardrobe
- Side cover
- Promotion plates
- Accessories
- Nozzle set
- etc.

SUCTION UNIT WITH TIPPING DISCHARGE

Operation Areas

- Sewage sludge disposal
- Landfill water disposal
- Porta jon disposal
- Waste water transport
- Cesspit cleaning
- Oil-, fuel-, and grease separator/filter cleaning
- Transport of dangerous goods classifications: 3, 5.1, 6.1, 8, 9
- Hydrodynamic tube-cleaning (with optional high pressure unit)

Features

- Discharge by hydraulically operated tipping
- Discharge by pressurisation of vacuum pump
- Discharge by free flow
- Different compartments (optional)
- Combined operation of suction and high-pressure mode (optional)
- Fixed water compartment (optional)

Tank Capacity

- Sludge volume according to customer demand
- up to 20.000 litre air volume
- cylindrical sludge compartment
- Normal steel or stainless steel
- With manhole or over the full diameter upwards operated rear door
- Water compartment (optional) up to 5.000 litres air volume, normal steel or stainless steel
- Tank level indicator with internally located float and exterior scale, design with PE-ball

Rear Door

- Hydraulically operated over the full diameter upwards
- Torispherical head
- Normal steel or stainless steel
- Central locking system, pneumatically or hand operated

Vacuum Pump

- Vacuum pump according to customer demand (e.g. CVS, Gardner-Denver-Wittig, SIHI, Jurop, Samson etc.)
- Capacity up to 4.000 m³/h
- Mechanically oder hydraulically operated
- Optional: hose reel, suction hose cassette, telescope-hose

High Pressure Pump (Optional)

- Capacity from 30 to 130 l/min at 200 bar (e.g. Speck, URACA, Pratisoli etc.)
- Mechanically or hydraulically operated
- Small high-pressure hose reel, operated hydraulically or by hand, with 60 m hose DN 13, optional up to 120 m
- Level indicator with exterior scale

Equipment

- Lower suction connection (optional: upper suction connection)
- Discharge apron
- Tool boxes or hoses boxes on left and right hand side, in aluminium or stainless steel
- Water level warning system
- Residual water emptying system
- Spraying gun
- High pressure/suction hose reel
- Refuse box
- Halogen working lights
- Central controls in stainless steel housing
- Vice

Options

- According to ADR regulations, transport of dangerous goods classifications: 3, 5.1, 6.1, 8, 9
- Manhole with ladder and stand
- Radio remote control
- Reverse camera system
- Hydraulic winch
- Hand washing system with cold water or cold/hot water
- Heated wardrobe
- Side cover
- Promotion plates
- Accessories
- Nozzle set
- etc.

BUILT-IN HIGH PRESSURE RINSING UNIT

Areas of application

- Pipe cleaning, hydrodynamic
- Sewer cleaning, hydrodynamic
- Surface cleaning
- Cleaning inside of tanks

Water tank

- Size: on customer request up to 2000 litre
- Form: cylindrical, oval, square
- Material: Steel, stainless steel, plastic with manhole
- Water filling facilities
- Contents level display via inspection glass
- Residue emptying etc.

High pressure pump

- High pressure pump, make according to customer demand (URACA, Speck, Pratissoli etc.)
- Quantity: 1 piece
- Power from auxiliary drive of the chassis
- Rinse capacity: up to 130 l/min. up to 200 bar
- Pressure regulation valve

High pressure system

- Reel frame hydraulically mobile and can be rotated 180° by hand with hand brake
- High pressure rinsing reel with continuous hydraulic power in both directions
- HP reel designed for DN13 HP hose up to 120 m
- Filling reel, driven hydraulically with 50 DN 19 filling hoses

Equipment

- Compartments clad from inside with wood and with seamless white plastic coating
- Nozzle set box from polished sheets of stainless steel in lockable format,
- Tool chest of polished stainless steel sheets in lockable format with a middle shelf
- Water level warning system
- Residual water emptying system
- Spraying gun/wash lance
- Radio remote control
- Cable remote control
- Halogen working lights
- Air compressor,
- Central controls in stainless steel housing
- etc.

Options

- Hydraulic winch
- Hand washing system with cold water or cold/warm water
- Winter heating
- Accessories
- Nozzle set
- etc.



ROJET 30 – 130

Drive

- air-cooled 4 stroke petrol engine
- 1 cylinder
- Electric start
- 9.5 kW output
- Regular petrol
- 12 V starter battery

HP pump

- 3 plunger pump
- max. water capacity 30 l/min
- max. 130 bar pressure

Water tank (Plastic)

- 200 litre air volume content

HP reel (Stainless Steel)

- manual drive, with pivot joint
- with 50 metre DN 12 high-pressure hose

Filling reel

- made from stainless steel
- manual drive, with pivot joint
- with 50 metre DN 19 filling hose

Trailer

- Box trailer
- without brakes
- with cover and arch
- Parking supports
- Dimensions: LxWxH = 2520 x 1480 x 1700 mm

Possible accessories

- | | | |
|--------------------|-------------|--------------------|
| ■ mobile hose reel | ■ Nozzles | ■ Suction injector |
| ■ Pulleys | ■ Spray gun | |

Features

- highest quality and long lifetime through serial production and use of top-quality parts
- sufficiently dimensioned pump and drive motor, thus no exceeding of the performance guidelines possible
- free vehicle selection, as construction is possible in any suitable new or used vehicle or trailer
- possible to swap to another vehicle at any time due to modular construction
- no vehicle with auxiliary drive required, therefore independence from vehicle engine
- low maintenance costs through own drive unit
- clear guarantee demarcation between device and chassis manufacturer
- fully galvanised frame
- Rotational speed limitation, so no over-revving of the HP pump
- built-in pressure switching valve, thus work with wash lance/spraying gun possible
- extensive accessories available



Equipment

- Water filter
- Manometer
- 1 piece 1/2" standard nozzle
- Safety valve

Weight:

- Unladen weight approx. 290 kg
- Permissible total weight approx. 550 kg

ROJET 130 – 160

Drive

- Diesel engine
- 4 cylinder
- water-cooled
- Turbocharger
- automatic speed regulation
- 42 KW output
- 27 litre fuel tank
- 12 V starter battery

HP pump

- 3 plunger pump
- max. water capacity 130 l/min
- max. 160 bar pressure

Water tank

- 800 litre air volume contents
- made from plastic

Large HP reel

- Hydraulic drive
- continuously variable
- with DN 19 HP hose, 80 metre length

Small HP reel

- Hydraulic drive
- continuously variable
- with DN 12 HP hose, 80 metre length

Filling reel

- manual drive, with swivel joint
- with 50 metre DN19 filling hose

Equipment

- Fully galvanised frame
- water filter
- water level display
- Glycerine manometer
- safety valve with unloader function
- C connector
- frost protection intake
- pressure switch cock
- 2 pcs standard nozzles

Accessories

- mobile hose reel
- Pulleys



Fittings cabinet

- made from stainless steel
- Engine control lights
- Ignition switch
- Operating hours counter
- Fuel display
- Diesel cut-out warning system
- Water level warning system

Weights & measurements

- Unladen weight approx. 900 kg
- LxWxH = 2000 x 1400 x 1360 mm

Options

- Water tank 400/800/1000/1600/2000 etc. Litre
- automatic fill stop
- automatic hose routing
- Cable remote control
- Radio remote control
- Aluminium corrugated floors
- Undercarriage

- Nozzles
- Spray guns

Features

- highest quality and long lifetime through serial production and use of high-quality components
- adequately dimensioned pumps and drive engine, thereby no exceeding of the performance guidelines possible
- free vehicle selection, as can be built in to any suitable new or used vehicle or trailer
- can be adapted to any vehicle due to modular build
- no vehicle or auxiliary drive necessary, thus independence from vehicle engine
- low maintenance costs through own drive unit and clear guarantee demarcation between device and chassis manufacturer
- fully galvanised frame
- Speed limitation, so no over-revving of the HP pump
- built-in pressure switch valve, thus allowing work with wash lance/spray gun
- extensive accessories available

ROJET "50-120"

- air-cooled 4 stroke petrol engine, 2 cylinder, 15 kW, electric start, 12 V starter battery, auto. speed regulation
- 3 plunger HP pump, max. water capacity 50 l/min, max. 120 bar pressure
- Water tank with 400 litre air volume content, made from plastic
- HP reel, manual drive, with swivel joint, with 80 m DN 12 HP hose
- Filling reel, manual drive, with swivel joint, with 50 m DN 19 filling hose
- fully galvanised frame
- Safety valve, water filter, manometer, pressure switch cock frost protection intake
- 1 piece 1/2" standard nozzle
- Dimensions: L type LxWxH = 1600 x 1240 x 950 mm; S type LxWxH = 1050 x 1240 x 1300 mm
- Unladen weight approx. 300 kg

Options

- HP reel with hydraulic power
- Filling reel with hydraulic power
- Water tank 400/800/1000/1600/2000 etc. litre
- automatic fill stop
- Cable remote control
- Radio remote control
- Aluminium corrugated floor
- Undercarriage
- etc.

Possible accessories

- mobile hose reel
- Pulleys
- Nozzles
- Spray gun
- Suction injector
- etc.

Features

- highest quality and long lifetime through serial production and use of high-quality parts
- sufficiently dimensioned pump and drive engine, thus no exceeding of the performance guidelines possible
- free vehicle selection, as construction is possible in any suitable new or used vehicle or trailer
- possible to swap to another vehicle at any time due to modular construction
- no vehicle with auxiliary drive required, therefore independence from vehicle engine
- low maintenance costs through own drive unit
- clear guarantee demarcation between device and chassis manufacturer
- fully galvanised frame
- Speed limitation, so no over-revving of the HP pump
- built-in pressure switching valve, thus work with wash lance/spray gun possible
- extensive accessories available



ROJET "60-140"

- air-cooled 4 stroke petrol engine, 2 cylinder, 17 kW, electric start,
- 12 V starter battery, auto. speed regulation
- 3 plunger HP pump, max. water capacity 60 l/min, max. 140 bar pressure
- Water tank with 400 litre air volume content, made from plastic
- HP reel, manual drive, with swivel joint, with 80 m DN 12 HP hose
- Filling reel, manual drive, with swivel joint, with 50 m DN 19 filling hose
- fully galvanised frame
- Safety valve, water filter, manometer, pressure switch cock, frost protection intake
- 1 piece 1/2" standard nozzle
- Dimensions: L type LxWxH = 1600 x 1240 x 950 mm; S type LxWxH = 1050 x 1240 x 1300 mm
- Unladen weight approx. 300 kg

Options

- HP reel with hydraulic power
- Filling reel with hydraulic power
- Water tank 400/800/1000/1600/2000 etc. litre
- automatic fill stop
- Cable remote control
- Radio remote control
- Aluminium corrugated floor
- Undercarriage
- etc.

Possible accessories

- mobile hose reel
- Pulleys
- Nozzles
- Spray gun
- Suction injector
- etc.

Features

- highest quality and long lifetime through serial production and use of high-quality parts
- sufficiently dimensioned pump and drive engine, thus no exceeding of the performance guidelines possible
- free vehicle selection, as construction is possible in any suitable new or used vehicle or trailer
- possible to swap to another vehicle at any time due to modular construction
- no vehicle with auxiliary drive required, therefore independence from vehicle engine
- low maintenance costs through own drive unit
- clear guarantee demarcation between device and chassis manufacturer
- fully galvanised frame
- Speed limitation, so no over-revving of the HP pump
- built-in pressure switching valve, thus work with wash lance/spray gun possible
- extensive accessories available



ROJET "85-160"

- water-cooled diesel engine, 4 cylinder, 37 kW, electric start, 12 V starter battery, auto. speed regulation
- 3 plunger HP pump, max. water capacity 85 l/min, max. 160 bar pressure
- Water tank with 800 litre air volume content, made from plastic
- HP reel, manually powered, with swivel joint, with 80 m DN 12 HP hose
- Filling reel, manually powered, with swivel joint, with 50 m DN 19 filling hose
- Fully galvanised frame
- Water level display, C connector, safety valve, water filter, manometer
- 1 piece 1/2" standard nozzle
- Control cabinet, with engine control lights, ignition, working hours counter, fuel display
- Diesel cut-out warning system, water level warning system
- Dimensions: LxWxH = 1700 x 1240 x 1300 mm
- Unladen weight approx. 700 kg

Options

- HP reel with hydraulic power
- Filling reel with hydraulic power
- Water tank 400/800/1000/1600/2000 etc. litre
- automatic fill stop
- Cable remote control
- Radio remote control
- Aluminium corrugated floor
- Undercarriage
- etc.

Possible accessories

- mobile hose reel
- Pulleys
- Nozzles
- Spray gun
- Suction injector
- etc.

Features

- highest quality and long lifetime through serial production and use of high-quality parts
- sufficiently dimensioned pump and drive engine, thus no exceeding of the performance guidelines possible
- free vehicle selection, as construction is possible in any suitable new or used vehicle or trailer
- possible to swap to another vehicle at any time due to modular construction
- no vehicle with auxiliary drive required, therefore independence from vehicle engine
- low maintenance costs through own drive unit
- clear guarantee demarcation between device and chassis manufacturer
- fully galvanised frame
- Speed limitation, so no over-revving of the HP pump
- built-in pressure switching valve, thus work with wash lance/spray gun possible
- extensive accessories available



ROJET "100-160"

- water-cooled diesel engine, 4 cylinder, 37 kW, electric start, 12 V starter battery, auto. speed regulation
- 3 plunger HP pump, max. water capacity 100 l/min, max. 160 bar pressure
- Water tank with 800 litre air volume content, made from plastic
- HP reel, manually powered, with swivel joint, with 80 m DN 16 HP hose
- Filling reel, manually powered, with swivel joint, with 50 m DN 19 filling hose
- Fully galvanised frame
- Water level display, C connector, safety valve, water filter, manometer, pressure switch cock
- Frost protection intake
- 1 piece 1/2" standard nozzle
- Fittings cabinet with engine control lights, ignition switch, operating hours counter, fuel display
- Diesel cut-out warning system, water level warning system
- Dimensions: LxWxH = 1700 x 1240 x 1300 mm
- Unladen weight approx. 760 kg

Options

- HP reel with hydraulic power
- Filling reel with hydraulic power
- Water tank 400/800/1000/1600/2000 etc. litre
- automatic fill stop
- Cable remote control
- Radio remote control
- Aluminium corrugated floor
- Undercarriage
- etc.

Possible accessories

- mobile hose reel
- Pulleys
- Nozzles
- Spray gun
- Suction injector
- etc.

Features

- highest quality and long lifetime through serial production and use of high-quality parts
- sufficiently dimensioned pump and drive engine, thus no exceeding of the performance guidelines possible
- free vehicle selection, as construction is possible in any suitable new or used vehicle or trailer
- possible to swap to another vehicle at any time due to modular construction
- no vehicle with auxiliary drive required, therefore independence from vehicle engine
- low maintenance costs through own drive unit
- clear guarantee demarcation between device and chassis manufacturer
- fully galvanised frame
- Speed limitation, so no over-revving of the HP pump
- built-in pressure switching valve, thus work with wash lance/spray gun possible
- extensive accessories available



ROJET COMFORT "50-120"

Drive:

- water-cooled diesel engine, 4 cylinder, 37 kW
 - electric start, 12 V starter battery (36Ah)
 - automatic speed regulation
- HP pump:
- 3 plunger pump
 - max. water capacity 100 l/min. max. 160 bar pressure

Water tank:

- 800 litre air volume contents, made from plastic

HP reel:

- Can swivel by 90°, with intermediate locking, manual drive, with swivel joint, with 80 m DN16 HP hose

Filling reel:

- manual drive, with swivel joint, with 50 m DN 19 filling hose

Equipment:

- Fully galvanised frame, water level display, C connector, safety valve, water filter, manometer ■ pressure switch cock, frost protection intake, 1 piece 1/2" standard nozzle

Fittings cabinet:

- with engine control lights, ignition switch, operating hours counter, fuel display
- Diesel cut-out warning system, water level warning system

Dimensions:

LxWxH = 1700 x 1240 x 1300 mm

Weight:

- Unladen weight approx. 760 kg



ROJET COMFORT "60-140"

Drive:

- air-cooled 4 stroke petrol engine, 2 cylinder, 17 kW, electric start, 12 V starter battery (36Ah), automatic speed regulation

HP pump:

- 3 plunger pump
- max. water capacity 60 l/min. max. 140 bar pressure

Water tank:

- 400 litre air volume contents, made from plastic

HP reel:

- Can swing out by 90°, with intermediate locking
- manual drive, with swivel joint, with 80 m DN12 HP hose

Filling reel:

- manual drive, with swivel joint, with 50 m DN 19 filling hose

Equipment:

- Fully galvanised frame, safety valve, water filter, manometer, pressure switch cock, frost protection intake, 1 piece 1/2" standard nozzle

Dimensions:

- L type – LxWxH = 1600 x 1240 x 950 mm
- S type – LxWxH = 1050 x 1240 x 1300 mm

Weight:

- Unladen weight approx. 300 kg



ROJET COMFORT "85-160"

Drive:

- air-cooled diesel engine, 4 cylinder, 37 kW, electric start, 12 V starter battery (36Ah), automatic speed regulation

HP pump:

- 3 plunger pump
- max. water capacity 85 l/min. max. 160 bar pressure

Water tank:

- 800 litre air volume contents, made from plastic



HP reel:

- Can swing out by 90°, with intermediate locking, manual drive, with swivel joint, with 80 m DN12 HP hose

Filling reel:

- manual drive, with swivel joint, with 50 m DN 19 filling hose

Equipment:

- Fully galvanised frame, water level display, C connector, safety valve, water filter, manometer, pressure switch cock, frost protection intake, 1 piece 1/2" standard nozzle

Cabinet:

- with engine control lights
- Ignition switch, operating hours counter, fuel display
- Diesel cut-out warning system, water level warning system

Dimensions:

- LxWxH = 1700 x 1240 x 1300 mm
- Unladen weight approx. 700 kg

ROJET COMFORT "100-160"

Drive:

- water-cooled diesel engine, 4 cylinder, 37 kW
- electric start, 12 V starter battery (36Ah)
- automatic speed regulation

HP pump:

- 3 plunger pump
- max. water capacity 100 l/min. max. 160 bar pressure

Water tank:

- 800 litre air volume contents, made from plastic

HP reel:

- Can swivel by 90°, with intermediate locking, manual drive, with swivel joint, with 80 m DN16 HP hose

Filling reel:

- manual drive, with swivel joint, with 50 m DN 19 filling hose

Equipment:

- Fully galvanised frame, water level display, C connector, safety valve, water filter, manometer
- pressure switch cock, frost protection intake, 1 piece 1/2" standard nozzle

Fittings cabinet:

- with engine control lights, ignition switch, operating hours counter, fuel display
- Diesel cut-out warning system, water level warning system

Dimensions:

LxWxH = 1700 x 1240 x 1300 mm

Weight:

- Unladen weight approx. 760 kg



IBAK CAMERA SYSTEMS

IBAK CCTV EQUIPMENT:

We supply and service the full range of IBAK CCTV equipment. IBAK are a German based company specialised in producing quality CCTV equipment with products ranging from pushrod cameras right up to mainline crawler systems. We are constantly being updated on the latest training along with all new IBAK software updates and we offer an extensive stock range.

Founded in 1945 as a small consulting engineering firm, IBAK is today the biggest manufacturer and supplier of pipe inspection systems and is at the same time the oldest company in the trade. With more than 65 years of experience and the extremely high demands they place on their products – and also on themselves – They provide optimum benefit to our customers.

IBAK products work in the dark, but their success is visible. Throughout the world, operators use the innovative sewer inspection system by this Kiel-based market leader. IBAK's presence is felt all over the globe.

IBAK



IBAK PUSH-ROD CAMERA SYSTEMS

IBAK MINILITE

The IBAK MiniLite is a compact push camera system for the inspection of house and property drainage systems. It combines extreme stability with easy handling and is easy to operate after a short training period. For use in pipes with smaller diameters the MiniLite is equipped with a 30 m long push rod (Magic Push Rod) with 12 mm diameter and the bend-capable IBAK HYDRUS firmly attached to the push rod. For longer distances there is an exchange basket with a stable 15 mm push rod which can be equipped with different camera heads (pluggable HYDRUS, JUNO, ORION, ORION L). When used in conjunction with an ORION 2.5 or 2.7, a diameter measurement can be performed automatically with one button push. This option can be ordered when purchasing a new MiniLite. A retrofit is also possible. The large 10.4" display of the MiniLite provides an excellent image with all camera versions. If the MiniLite is operated with the ORION or the steerable ORION L, the rotating head with integrated location transmitter is controlled via the keys on the control unit. The insertion of text or the storage of image or video data onto a SD card is easy. The membrane keyboard is particularly large, so that data can also be entered when wearing gloves. Furthermore, the entire surface of the control panel is splash-proof and easy to clean.



IBAK OPERATING SYSTEMS

IBAK BK 3.5.1

The control box IBAK BK 3.5.1 is easily transported in the box housing thanks to its compact design. Installed into an inspection vehicle as well as a portable unit, BK 3.5.1 facilitates the operation of IBAK inspection systems. All functions of the camera tractor and the camera can be control- led and operated with the two joysticks, the control buttons and the integrated keyboard. At the same time, the operating status of the individual system components is clearly indicated on a 5.7" colour display. The actual inspection is monitored from a 12" TFT colour monitor with excellent picture reproduction, which is installed in the lid to ensure user-friendliness. In addition, texts and symbols can be over- laid on the video picture via the keyboard and an integrated data display generator. Optionally, the BK 3.5.1 control box can also be equipped with a PC module. This makes it IKAS 32 capable and permits a complete analysis of the condition of the inspected sewer on-site (please refer to the IKAS 32 brochure for functions and data interfaces).

For clear menu guidance, the IKAS 32 BK edition software includes a specially optimised analysis assistant, which enables the parallel display of the video image and software dialogues on the screen. The video images can be digitised in MPEG format. Furthermore, an external mouse can be connected to the PC module and data transfer is also possible via the USB port or a network interface (LAN). The video data in MPEG 4 format can be transferred to a memory card (Accessory SD-Option) without using your existing (or with a switched off) PC. The firmware update can be carried out by the user with the aid of a standard SD card.



IBAK BS 3.5 / BS 7

IBAK BS 3.5 and BS 7 are operating systems for IBAK inspection systems for fixed installation in an inspection vehicle. This central control and operating unit consists of an ergonomically designed control panel, a 19" rack and a keyboard. All current IBAK tractors, winches and cameras can be operated with it, the connected components are automatically identified by the system. The BS 7 copes with cable lengths up to 500 m and controls all IBAK PANORAMO systems. The tractor and the camera are operated in a user-friendly manner with both joysticks. It is also possible to stipulate which joystick is to be responsible for the operation of individual components, by means of a preset implemented via the integrated touch-screen in the control panel.

The touch-screen also offers the user numerous other possibilities, such as an information menu where all assembled components and components identified by the system are displayed on a colour display. In addition, various features can be controlled, such as light intensity, different functions of the camera and the tractor as well as further system-relevant options. Damage descriptions, symbols or comments entered via the keyboard can be overlaid with the integrated data display generator into the video image. Furthermore, the connection of video recording devices is also possible. Spoken comments can be recorded using the integrated microphone in the control panel; the audio output enables saving of these voice-overs synchronously to the inspection video.



IBAK BS 5

IBAK BS 5 is the central control and operating unit for permanent installation of IBAK inspection systems. All current IBAK cameras and tractors can be operated with it. It's convenient, clear and simple operating structures enable the user to concentrate completely on the sewer inspection. The camera tractor and the respective camera are controlled via the ergonomically-shaped console, with two joy-sticks, enclosing the PC keyboard. With its highly developed microprocessor control, the intelligent control system IBAK BS 5 identifies the connected system components and status information, such as e.g. the internal pressure of camera and tractor, supply voltage, lighting intensity as well as the height of the electronic height adjustment in percentage, is displayed on the graphics LCD for the user. Seven of the 16 control keys have pre-defined functions by default, nine keys are automatically assigned with functions by the system depending on the system configuration.

The IBAK BS 5 also has an integrated autostop function; in combination with the cable winches KW 310 and 505 this enables stopping the tractor automatically during reversing at freely definable spots. Approaching the entry manhole in particular is thus made easier. The elaborate, practice-oriented and energy-efficient design of the IBAK BS 5 guarantees efficient operation of IBAK inspection systems from every perspective



IBAK CAMERA HEADS

IBAK HYDRUS

The IBAK HYDRUS is a small inspection camera with bending-capacities for push operations. It is available in two versions: as a complete system with cable reel and as a pluggable version. With low diameter, both models are ideal for use in supply pipes within a building; with the Hydrus complete system inspections are possible as from DN 50 upwards, with the pluggable version inspections are possible as from DN 70 upwards. Thanks to its flexibility the HYDRUS can be easily pushed through various bends consecutively; the integrated and controllable LED lighting illuminates the area of inspection in an optimal way.

IBAK HYDRUS 1 Complete system with MiniLite, MobiLite or HSP 40/60 The compact complete system from IBAK includes the HYDRUS 1, firmly mounted onto the push camera systems MiniLite and MobiLite or onto the cable reel HSP 40 / 60 that holds 30 metres of "Magic Push Rod". This is a guide hose containing both the camera cable and the push rod. Its flexibility is ideally adjusted to its operation nominal diameter from DN 50 upwards.

IBAK HYDRUS 2 Pluggable push camera The pluggable HYDRUS 2 fits onto the compact push camera systems MiniLite and MobiLite or onto the IBAK cable reels HSP 40 and HSP 60 that hold up to 60 metres of "Magic Push Rod". The strength and flexibility of the push rod are optimised for the deployment range from DN 70 upwards. HYDRUS 2 completes the modular diversity of IBAK camera systems for use in areas with small pipe diameters. HYDRUS 2 has the same plug connection as IBAK JUNO, ORION and ORION L so that existing IBAK systems can be optimally complemented.



IBAK RETRUS

IBAK RETRUS is a back-eye camera which can be used on almost all IBAK camera tractors. In many situations the RETRUS provides for greater convenience and safety during reversing. Problematic areas detected during forward travel, such as protruding obstructions, damages and offsets are remembered during reversing, so that the inspector can react accordingly and prevent damage to the system. An optimised synchronisation between IBAK cable winches and IBAK camera tractors guarantees a maximum range at constant speed and a fast automated reversing. However, there are situations where controlling the reverse procedure with a back-eye camera is recommended. For example, if a steerable tractor is in a rectangular profile, RETRUS facilitates the reversing procedure for the inspector; a collision of camera tractor and pipe wall is avoided with the back-eye option. RETRUS also offers invaluable advantages when it comes to reversing with a disconnected winch (synchronisation switched off). The danger of running over the camera cable with camera tractor is minimised with the back-eye camera.



IBAK ORPHEUS

IBAK ORPHEUS is a pan and rotate camera for DN 150 upwards. It combines the proven functionalities of the IBAK ORION such as full rotatability of the camera head and automatic joint inspection with a zoom lens and laser reference measurements. Two integrated lasers enable defect measurements to be performed easily in combination with the IBAK software IKAS 32. The 10x optical zoom and the automatic return to zero function round off the camera.

The integrated light-emitting diodes, which are protected by high impact-resistant, transparent caps, ensure excellent illumination in all environments. Thus, the ORPHEUS optimally covers a broad inspection range when used with medium diameter pipes. Integrated sensors for pressure monitoring and optional explosion protection reliably assure the safety of the equipment and the site of operation. The IBAK ORPHEUS is a modular unit and can be mounted on the IBAK camera tractors and on a manhole adapter.



IBAK ORION 2.6L

In branched networks the special version of the pan and rotate cam- era IBAK ORION is used: IBAK ORION L. Its guide unit, the “Kiel rod”, can be panned and rotated in all directions and guides the camera smoothly into the target pipe. Its fast direction-changing function and high mechanical durability set the ORION L apart from other camera systems with steering capability for the inspection of main pipes. The latest camera model IBAK ORION 2.6 L provides a large angle of aperture, excellent light sensitivity and 3x zoom.

Applicable from DN 100 upwards, this camera has the distinctive ORION features: full rotatability of the camera head, remote-control- led operation of the viewing direction and all functions of the lens system and internal pressure monitoring. Specially arranged LEDs provide excellent illumination of the inspection area and ensure a superb picture that shows even the smallest defects. The ORION 2.6 L provides in the axial view an upright image thanks to the UPC function (Upright Picture Control). Specially arranged LEDs provide excellent illumination of the inspection area and ensure a superb picture that shows even the smallest defects. The IBAK ORION L can be modularly connected to all IBAK “Magic Push Rods” and is particularly effective in combination with the LISY 3 satellite systems. An explosion-proof model is also available. User-friendly, robust, low-maintenance – like all IBAK cameras.



IBAK ORION 2.7

IBAK ORION is the all-rounder when it comes to the inspection of pipes from DN 100 upwards. Every requested viewing range is reached rapidly by the microprocessor controlled pan and rotate head. ORION 2.7 can revolve endlessly around its own axis. By means of the pan function it is possible to view into all directions and even to view „backwards“ into the branch when automatically swerving the pipe joints. The ORION 2.7 provides in the axial view an upright image thanks to the UPC function (Upright Picture Control). With a narrow diameter of 60 mm the camera can be connected to all IBAK camera tractors and has also full bend-capacities when operated as push camera. The system is secured by an internal operating pressure of 1 bar and internal pressure monitoring – in case of a pressure drop the inspector receives a warning signal on the LCD display and a warning tone in the control unit. On customer request IBAK can also deliver the ORION models with an increased pressure resistance. The latest camera model IBAK ORION 2.7 provides a large angle of aperture, excellent light sensitivity and 3x zoom. Due to its extended features, the camera is ideally suited also for larger pipes. Inspections

up to DN 600 can be carried out without the need of additional lights. Using the integrated location transmitter the camera's position can be determined at any time. The in-built laser enables diameter and deformation measurements as well as defects and object measurement to be performed easily during the inspection of the sewer pipe. According to the area of application ORION 2.7 is available with and without ex-protection. The housing made of aircraft aluminium offers high pressure resistance and very low weight. This combination allows huge ranges in push operation and at the same time maximum robustness of the camera. High-strength materials, which are necessary for the ex-protection impact test, are used in explosion-proof and non-explosion-proof cameras.



IBAK JUNO

IBAK JUNO is a versatile axial view camera for inspections of pipes from DN 100 upwards. Thanks to the UPC function (Upright Picture Control), an upright image is provided. The integrated high-performance LEDs allow optimum illumination and the best view during inspection. The location transmitter determines the position of the camera quickly and conveniently and also localises identified damaged areas; the transmitter can be switched off so erroneous findings due to the reception of external signals are avoided. The internal pressure monitoring ensures safe operation of the camera system. JUNO can be used during push operations with IBAK coilers HSP 40 and 60, with the push rods of IBAK LISY (KT220 / LISY Synchron winch) as well as with the compact push camera systems MiniLite and MobiLite. During tractor operation JUNO can be used with all IBAK camera tractors. Furthermore, JUNO forms a powerful unit with the IBAK laser profiler due to its large aperture angle. This combination also facilitates deformation and corrosion measurements as well as diameter measurements in large pipes.



IBAK CAMERA TRACTORS

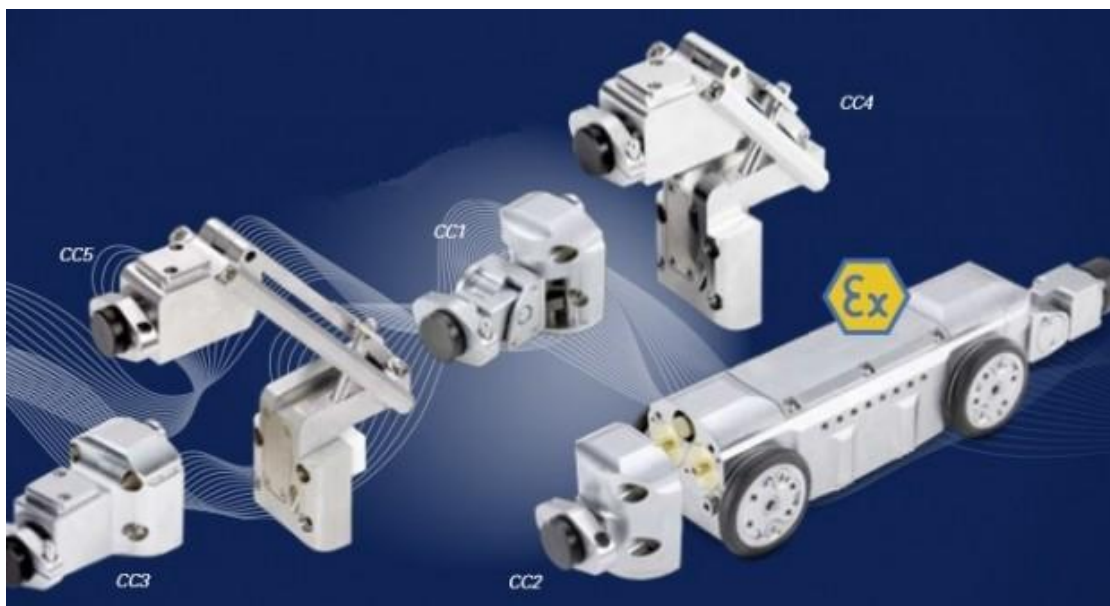
IBAK T66 CAMERA TRACTOR

IBAK T66 is a versatile camera tractor for the inspection of pipes from DN 100 upwards. It can either be used as a portable inspection system or for extending an existing camera tractor system. Different camera connections, wheel sets and a camera tractor attachment make it possible to configure T 66 for different requirements in an optimal way. It is equipped with the modular IBAK camera connection so that all IBAK cameras can be operated with T 66. Even in connection with the two larger zoom cameras like ORPHEUS or ARGUS 5, a high stability and traction is achieved. In narrow spaces T 66 copes in combination with the camera connection CC1 that can be panned and folded. Because the folding connector for the camera cable can also be moved horizontally and vertically, the camera tractor can be easily inserted into any pipe from DN 100 upwards, also through compact manholes as well as maintenance openings. In larger pipes the use of an additional light is recommended. Even larger pipe diameters are easily mastered by T 66, if equipped with the tractor attachment FW 66. The use of FW 66 is recommended for DN 300 upwards and is easily mounted.

T 66 contains an electronic stabilisation function (ATC = Automatic Tilt Compensation). This function ensures active overturn protection and lets the tractor drive safely in the pipe invert. Because of the modular design of T 66 and the use of only one tool for the conversion of individual components, there are short set-up times for the pipe adaptations which allows for efficient working.

Full performance with a portable system Combined with the IBAK pan and rotate camera ORION, the cable reel KT 180 and the control box BK 3.5.1, the camera tractor T 66 is a powerful, compact, portable inspection system.

Extension of an existing tractor system The power spectrum of the existing IBAK tractor systems is extended with the addition of the camera tractor T 66 as the T 66 makes pipe inspections from DN 100 upwards possible.



IBAK T76 CAMERA TRACTOR

IBAK T76 is a robust and steerable camera tractor for the inspection of pipes from DN 150 upwards. In combination with a lowering device, the vertically and horizontally bendable folding connector for the camera cable and the bendable camera connection assure easy handling: the camera tractor is easily and conveniently introduced into every pipe from DN 150 upwards – with the corresponding accessories also through manholes with diameters from DN 300 and DN 400 upwards.

The wheel sets are supplied with the camera tractor and the optionally available integrated electronic height-adjusting device; this allows convenient inspections with a centred camera in pipe diameters from DN 700 upwards. For pipes with larger diameters, suitable accessories are available. T 76 has an electronic stabilising function which automatically guides the camera tractor back into the pipe invert if its position deviates. All components and sub-assemblies are designed for maximum robustness and reliability. The T 76 as well as the T 86 are designed as a modular assembly system consisting of the camera tractor base, the camera base, a height-adjusting unit and wheels. Both tractors can easily be assembled and reconfigured as necessary by the user with just a few manual actions required. Customers with an IBAK KRA 75 or 85 can use their existing wheels on the T 76 and the T 86.



IBAK T86 CAMERA TRACTOR

IBAK T86 is an efficient camera tractor for the inspection of pipes DN 200 upwards. Its powerful drive enables it to perform proficient pipe inspections also over long distances. The electrically height-adjusting device available as an option positions the camera optimally in the sewer pipe. In combination with the lowering device, the folding connector that bends horizontally/vertically for the camera cable and the camera connection ensure simple and safe introduction of the camera tractor into the pipe. After inspection, the fast reverse speed makes it possible to finish the work procedure quickly. All components and sub-assemblies are designed for maximum robustness and reliability.

The T 76 (see previous pages) as well as the T 86 are designed as a modular assembly system consisting of the camera tractor base, the camera base, a height-adjusting unit and wheels. Both tractors can easily be assembled and reconfigured as necessary by the user with just a few manual actions required. Customers with an IBAK KRA 75 or 85 can use their existing wheels on the T76 and the T86.



IBAK CABLE REELS AND WINCHES

IBAK KT 180

IBAK KT 180 is a portable cable reel which can hold up to 200 m of camera cable. A cable equalising amplifier for high picture quality and a length measuring device are integrated into the cable reel. The drive motor and a swivel cable guide device help the operator to wind the camera cable evenly. To ensure convenient and flexible operation, the cable reel is equipped with wheels and a folding transport handle



IBAK KW 180

IBAK KW 180 is a stationary, motor-driven cable winch and holds up to 200 m of camera cable. The powerful motor and an automatic winding device ensure level winding of the camera cable. A cable equalising amplifier for high picture quality and a length measuring device are integrated into the cable winch. A workplace light can be installed on the boom with deflection pulley. If necessary, the cable winch can also be operated using the remote control unit (e.g. from the rear of the vehicle).



IBAK KW 305 / 310 / 505

IBAK KW 305, KW 310 and KW 505 are fully automatic, motor- driven cable winches which hold up to 600 m (KW 505 with BS5) of camera cable. All three are designed for the operation with IBAK camera tractors and cameras. Furthermore, the IBAK LISY camera tractors, in combination with the LISY reels, are operated with KW 305/310/505. The IBAK optoscanner PANORAMO, PANORAMO 150 and PANORAMO SI can be operated with KW 310 and KW 505 (with FO cable). The integrated traction-regulating device synchronises camera tractor and cable winch operation: the cable is coiled and uncoiled onto the winch according to the speed of the camera tractor. This intelligent regulating system prevents the camera tractor from running over the camera cable and at the same time ensures that the camera tractor reverses at a consistent speed. The swivel boom enables exact positioning of the camera system over the manhole. The respective camera system can then be lowered safely and accurately into the manhole with the hoisting rope winch, whilst the integrated workplace light provides optimum illumination of the manhole opening. The automatic cable guide device ensures level winding of the camera cable onto the winch.

Furthermore the user can take advantage of the autostop function. This stops the camera tractor automatically at freely definable positions when it is moving in reverse direction and this is particularly useful when it is approaching the entry manhole: a further example of the great user-friendliness of IBAK inspection systems.

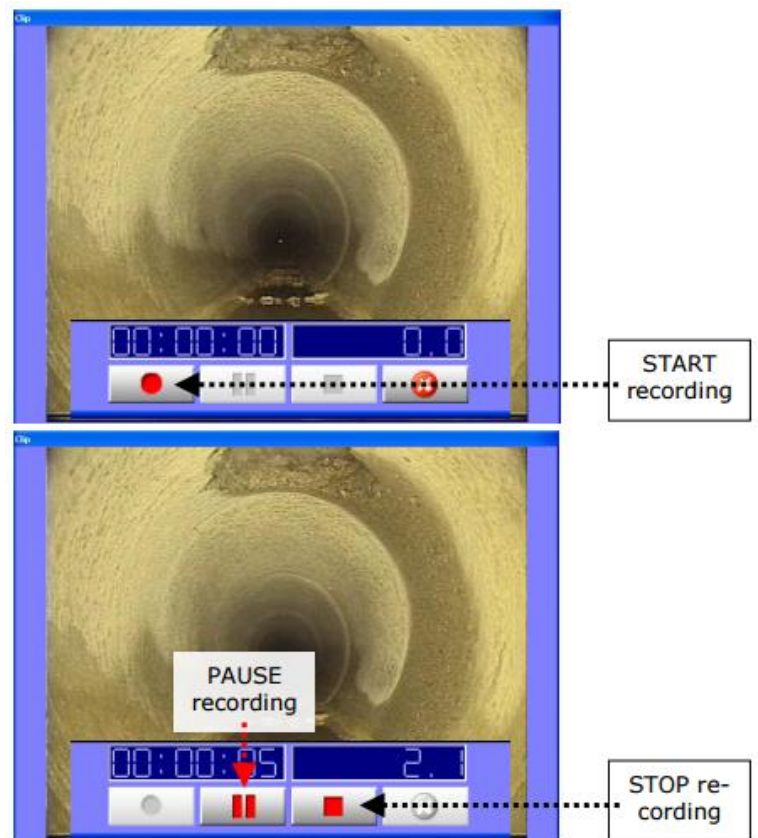
Picture transmission on the KW 505 is performed digitally via optical fibre without loss and fail-safe. The KW 505 can also be equipped with a thinner, lighter fibre optic cable to allow the cable winch to accommodate up to 600 metres and be operated on the BS5.



WINCAN SOFTWARE

THE SOFTWARE FOR THE INSPECTION AND MANAGEMENT OF THE WASTE WATER INFRASTRUCTURE

The WinCan Software is a specialized application for the inspection and administration of wastewater network systems. WinCan offers different solutions starting with the collection of the inspection data to the analysis of this data and finally the integration into Geographic Information Systems (GIS). For over 22 years we have focused on innovative technologies and on a global market strategy. These two principles of our philosophy explain why the WinCan software allows the integration of the newest inspection technologies in 46 different languages and 50 different inspection standards. With more than 7000 licenses sold worldwide WinCan software is the market leader in the pipe inspection software business.



IMS ROBOTICS

Cutting Robot Technology for Sewer Rehabilitation

IMS Robotics GmbH is a Saxon medium-sized company, which has worked in the area of modern environment technology for more than 15 years. We are specialized in the design, engineering and manufacturing of robots for the sewer rehabilitation. Our very innovative products have been patented repeatedly and are characterized by their special precision and efficiency.

Our equipment has always been geared to the requirements and needs of our customers and users. Therefore our equipment is subject to continuous further development.

The IMS Robotics logo, featuring the letters 'IMS' in a large, bold, red serif font, with the word 'Robotics' in a smaller, black, sans-serif font below it.

IMS MICRO CUTTER COMFORT CUTTING ROBOT Ø 80 – 250 MM / 3" - 10"

Your advantages at one glance

- large range of application in pipes from DN 80 to 150 / 3 up to 6" (inside diameter), optional until DN 250 / 10"
- excellent flexibility in bends up to 90° in DN 100 / 4" through rotating and swivel head
- high work efficiency due to axial feed of approx. 100 mm / 4"
- usage also in difficult pipe situations due to creep- and climbing function
- pneumatic clamping unit permits use also in vertical pipes
- only very small access openings required
- convenient media supply package of 30 m / 98,40 ft
- extremely high cutting force through powerful air motor
- flexible operation through remote control via cable and removable monitor
- very precise control of cutter through joystick
- permanent monitoring of cutting operation due to colour camera with air/water cleaning
- great mobility convenience through compact chassis
- damage prevention through automatic monitoring of internal pressure with signalling
- deep pipe insertion by pipe eel possible
- variable cutting tools can be installed
- minimum downtimes in case of repair through operator-replaceable components or use of express service (see detailed description in the offer/order conditions)

Equipment features / functions and technical details

- useable from DN 80 to 150 / 3 up to 6" (inside diameter), up to DN 250 / 10" with optional extension
- flexibility in bends 90° from DN 100 / 4" (clay, no folds, or similar)
- axial feed approx. 100 mm / 4", creeping and climbing function
- 30 m / 98,40 ft media hose on drum
- coupling elements for pipe eel
- 400° rotating and approx. 90° swivel movement with stops
- air-powered cutter motor
- colour camera with LED
- camera cleaning with permanent air and water on demand (Switch)
- splashproof according to IP 54
- waterproof device with 0.8 bar nitrogen filling
- permanent monitoring of internal pressure with signalling
- remote control with joystick for rotation (sensitivity adjustable) and swivelling, controller for light, switch for water, cutting engine and each bubble
- 3,5" TFT LCD Monitor, storage picture/video (JPEG/MPEG) with SD card, USB, date and time display on demand
- outside diameter of cutter: 72 mm, overall dimensions: 600 x 600 x 920 mm (L x W x H)
- weight: approx. 55 kg
- compact assembly of cutter on chassis with pneumatic and electrical rotary leadthrough
- detachable individual components
- box with job site tools, nitrogen filling adapter, set of replacement screws, 1 cutting tool carbide, manual, over view spare parts

Requirements of usage

Power supply: 100 – 240 VAC, 50/60 Hz, max. 1,6 A

Compressed air requirements:

clean (particles < 5 micron),

temperature range 5 °C until max. 40 °C / 41 °F until max. 104 °F,

rest water separated, rest oil < 5 mg/m³,

pressure air supply max. 10 bar / 145 PSI,

min. volume 1 m³/min / 35 CFM

Cutting tools: Original IMS cutting tools are recommended

Inside pressure monitoring: nitrogen refilling equipment essentially required



IMS MICRO CUTTER AUTOMATIC CUTTING ROBOT Ø 80 – 250 MM / 3" - 10"

Your advantages at one glance

Equipment features / functions and technical details

- large range of application in pipes from DN 80 to 150 / 3 up to 6" (inside diameter), optional until DN 250 / 10"
- excellent flexibility in bends up to 90° in DN 100 / 4" through rotating and swivel head
- high work efficiency due to axial feed of approx. 100 mm / 4"
- usage also in difficult pipe situations due to manual or automatic creep- and climbing function
- pneumatic clamping unit permits use also in vertical pipes
- only very small access openings required
- convenient media supply package of 30 m / 98,40 ft
- extremely high cutting force through powerful air motor
- flexible operation through remote control via cable and removable monitor
- very precise control of cutter through joystick
- permanent monitoring of cutting operation due to colour camera with air/water cleaning
- great mobility convenience through compact chassis
- damage prevention through automatic monitoring of internal pressure with signalling
- deep pipe insertion by pipe eel possible
- variable cutting tools can be installed
- minimum downtimes in case of repair through operator-replaceable components or use of express service (see detailed description in the offer/order conditions)
- useable from DN 80 to 150 / 3 up to 6" (inside diameter), up to DN 250 / 10" with optional extension
- flexibility in bends 90° from DN 100 / 4", (clay, no folds, or similar)
- axial feed approx. 100 mm / 4", manual or automatic creep- and climbing function
- automatic creep- and climbing function either as single or permanent movement
- 30 m / 98,40 ft media hose on drum
- coupling elements for pipe eel
- 400° rotating and approx. 90° swivel movement with stops
- air-powered cutter motor
- colour camera with LED
- camera cleaning with permanent air and water on demand (Switch)
- splashproof according to IP 54
- waterproof device with 0.8 bar nitrogen filling
- permanent monitoring of internal pressure with signalling
- remote control with joystick for rotation (sensitivity adjustable) and swivelling, controller for light, switch for water, cutting engine and each bubble
- 3,5" TFT LCD Monitor, storage picture/video (JPEG/MPEG) with SD card, USB, date and time display on demand
- outside diameter of cutter: 72 mm, overall dimensions: 600 x 600 x 920 mm (L x W x H) weight: approx. 55 kg
- compact assembly of cutter on chassis with pneumatic and electrical rotary leadthrough
- detachable individual components
- box with job site tools, nitrogen filling adapter, set of replacement screws, 1 cutting tool carbide, manual, over view spare parts

Requirements of usage

Power supply: 100 – 240 VAC, 50/60 Hz, max. 1,6 A

Compressed air requirements:

clean (particles < 5 micron),
temperature range 5 °C until max. 40 °C / 41 °F until max. 104 °F,
rest water separated, rest oil < 5 mg/m³,
pressure air supply max. 10 bar / 145 PSI,
min. volume 1 m³/min / 35 CFM

Cutting tools: Original IMS cutting tools are recommended

Inside pressure monitoring: nitrogen refilling equipment essentially required



IMS MICRO CHECK PRESSURE TESTER DN 80 – 150

Your advantages at one glance

- Punctual pressure test, within one position (for example leaky pipe couplings, radial cracks etc.), in combination with IMS cutter MICRO comfort/automatic and MICRO premium
- large range of application in pipes from DN 80-150/3"-6" without rebuilding
- small outside diameter of 78 mm/3"
- precise control (light, camera, pipe plugs, filling test space) by the control unit of the IMS cutter MICRO comfort/automatic and MICRO premium
- only smallest access openings required
- one front camera with LED, one camera in the test space for exact positioning
- pipe plugs individually controllable
- adaptable to every standard pressure testing device
- waterproofed device with 0,8 bar nitrogen filling
- damage prevention by automatic monitoring of internal pressure with signaling
- flexibility in bends up to 90° from DN 100/4" (clay, no folds, or similar)
- length: 800 mm/2,6 ft

Internal pressure monitoring:

- Nitrogen refilling equipment essentially required for internal pressure monitoring.

The MICRO check is the ideal completion to an existing house service connection cutter MICRO comfort/automatic or MICRO premium.

It is very easy to adapt the MICRO check to the existing system. The device is ready to use in a few minutes. Simply unscrew the cutter drive, mount the MICRO check for that and connect the system with a quick-coupling

to any standard pressure tester.

Because of the small outside diameter, the device requires only smallest access openings into the pipeline network, for example cleaning cuts/ports. The large range of application from DN 80 up to DN 150/3" up to 6"

allows tightness tests (for example pipe couplings, radial cracks etc.) in ground pipes, house service connections as well as in house installations. The extremely flexibility in bends up to 90° in DN 100/4" enables the operation also in very difficult pipe situations. The MICRO check has two colour camera with LED lighting.

The front camera is used for observation during the insertion process and localization of the pipe section which has to be checked. The second camera is located directly in the test space of the system and secures an exact positioning at the pipe section which has to be checked.

Furthermore, the device has two separately controllable pipe plugs.

The MICRO check is waterproof, filled with nitrogen and has an automatic internal pressure monitoring.

The test procedure itself is carried out by the control unit of the existing system. The display or recording of the test result is carried out by a connected pressure tester.



IMS MICRO CHECK PRO PRESSURE TESTER DN 80 - 150/3"- 6"

Your advantages at one glance

- punctual pressure test, within one position (for example leaky pipe couplings, radial cracks etc.), in combination with IMS cutter MICRO comfort/automatic and MICRO premium
- large range of application in pipes from DN 80-150/3"-6" without rebuilding
- small outside diameter of 78 mm/3"
- 400° turning and approx. 90° swivelling movement with stops allows comfortable insertion in additional branch pipes in all directions
- precise control (light, camera, pipe plugs, filling test space, turning and swiveling) by the control unit of the IMS cutter MICRO comfort/automatic and MICRO premium
- only smallest access openings required
- one front camera with LED, one camera in the test space for exact positioning
- pipe plugs individually controllable
- adaptable to every standard pressure testing device
- waterproofed device with 0,8 bar nitrogen filling
- damage prevention by automatic monitoring of internal pressure with signaling
- flexibility in bends up to 90° from DN 100/4" (clay, no folds, or similar)
- length: 1050 mm/3,4 ft

Internal pressure monitoring:

- Nitrogen refilling equipment essentially required for internal pressure monitoring.

The MICRO check pro is the ideal completion to an existing house service connection cutter MICRO comfort/automatic or MICRO premium. It is very easy to adapt the MICRO check pro to the existing system. The device is ready to use in a few minutes. Simply unscrew the cutter drive, mount the MICRO check pro. For that and connect the system with a quick-coupling to any standard pressure tester.

Because of the small outside diameter, the device requires only smallest access openings into the pipeline network, for example cleaning cuts/ports. The large range of application from DN 80 up to DN 150/3" up to 6" allows tightness tests (for example pipe couplings, radial cracks etc.) in ground pipes, house service connections as well as in house installations. The extremely flexibility in bends up to 90° in DN 100/4" enables the operation also in very difficult pipe situations.

The MICRO check pro has an electrical rotation gear and a front lifting unit. This allows a comfortable insertion

in branch pipes in DN 100/4" up to 67° in all directions. The MICRO check pro has two color camera with LED lighting. The front camera is used for observation during the insertion process and for localization of the

pipe section which has to be checked. The second camera is located directly in the test space of the system and secures an exact positioning at the pipe section which has to be checked.

Furthermore, the device has two separately controllable pipe plugs.

The MICRO check pro is waterproof, filled with nitrogen and has an automatic internal pressure monitoring.

The test procedure itself is carried out by the control unit of the existing system. The display or recording of the test result is carried out by a connected pressure tester.



IMS CUT CAM – FOR PIPE INSPECTION FROM 15 TO 60 MM / 0,6 – 2,3“

lightweight, handy and easy to use camera system for pipe inspection and cutter observation

Equipment features and technical details:

- splash water protected mini camera system
- 13 mm / 0,5“ wide angle stainless steel camera head, 1bar water tight
- sapphire glass protected lens
- 12 mini LEDs, continuously adjustable
- 30 m / 98 ft Push-Pull-cable
- 3.5” TFT LCD monitor
- storage of pictures and videos on a SD-card (max 4 GB)
- operation by robust keys
- picture format (*.jpg 704 x 528 pixel)
- video sequences (MPEG4 *.asf 768 x 576 pixel; à 5 min)
- video in/out
- USB port
- 2100 mA battery (operating time about 2 h); wall power supply
- in a transport case with a 24 mm spacer

Dimension & Weight:

Dimension:

about 230 x 270 x 110mm (CutCam)

about 390 x 310 x 145mm (transport case)

Weight:

about 1.5kg (CutCam); 3.5kg (with transport case)



IMS NANO EASY – DN 70 up to DN 100/3" - 4"

- range of application in pipes from DN 70 up to DN 100/3" - 4" (inside diameter)
 - excellent flexibility in bends up to 90° in DN 70/3"
 - pneumatic clamping unit permits usage also in vertical pipes
 - only smallest access openings required
 - convenient supply hose package of 15 m/49 ft or 25 m/82 ft
 - high cutting force through powerful air motor
 - flexible operation due to on the supply hose movable steering wheel and removable monitor
 - permanent monitoring of cutting operation by integrated colour camera
 - high mobility convenience through compact stainless steel chassis
 - several cutting tools can be installed
 - accessories with construction site tools
-
- 15 m/49 ft or 25 m/49 ft supply hose package
 - air-powered cutter motor
 - integrated colour camera with LED lighting
 - camera cleaning with permanent air
 - splash-proof according to IP 54
 - manual controlling due to on the supply hose movable steering wheel
 - the steering wheel is provided with one switch for the bracing bladder, one switch or the cutter motor, one potentiometer for light control, two buttons for the lifting nit and one analogue video out
 - 3.5" TFT LCD monitor, storage of pictures/videos (JPEG/MPEG) with SD card, USB, date and time display
 - completely assembled cutter on chassis with pneumatic and electrical rotary leadthrough, analogue and digital video out
 - dimension of cutter: approx. L 495 x W 770 x H 877 mm/approx. 19.5" x 30" x 34.5"
 - outside diameter of cutter: 42 mm/1.65"
 - weight: approx. 35 kg



IMS MICRO LIGHT – DN 80 up to DN 150/3" up to 6"

- large range of application in pipes from DN 80 up to DN 150/3" up to 6" (inside diameter) without conversion work, optional extendable until DN 250/10"
- excellent flexibility in bends up to 90° in DN 100/4" through rotating and swivel head
- pneumatic clamping unit permits use also in vertical pipes
- clamping unit separately controllable by cable remote control
- only very small access openings required
- convenient supply hose package of 30 m/98,40 ft
- extremely high cutting force through powerful air motor
- permanent monitoring of cutting operation due to integrated colour camera in the cutting arm with air cleaning
- great mobility convenience through compact chassis
- damage prevention through automatic monitoring of internal pressure with signalling
- deep pipe insertion by fiberglass push rod possible
- variable cutting tools can be installed
- minimum downtimes in case of repair through operator-replaceable components or use of express service
- upgradeable to MICRO automatic at any time
- coupling elements for fiberglass push rod
- 400° rotating and approx. 90° swivel movement with stops
- air-powered cutter motor
- waterproof device with 0.8 bar nitrogen filling
- permanent monitoring of internal pressure with signalling
- cable remote control with joystick for rotation (sensitivity adjustable) and swivelling, controller for light, switch for cutting motor and bracing bladder control, 1 analogue BNC video output
- 3,5" TFT LCD monitor, storage picture/video (JPEG/MPEG) with SD card, USB, date and time display on demand
- outside diameter of cutter: 72 mm
- overall dimensions: L 660 x W 550 x H 800 mm (L 26" x W 22" x H 31")
- weight: approx. 47 kg
- compact cutter assembly on chassis with pneumatic rotary leadthrough
- detachable individual components
- box with job site tools, valve extension, set of replacement screws, 1 cutting tool carbide granulate, nitrogen filling adapter, thread extension, ball bearings and fins for air motor, manual and spare parts overview



IMS MICRO AUTOMATIC – DN 80 to 150/3" up to 6"

- large range of application in pipes from DN 80 to 150/3" up to 6" (inside diameter), optional up to DN 250/10"
- excellent flexibility in bends up to 90° in DN 100/4" through rotating and swivel head
- usable also in difficult pipe situations due to manual and automatic creeping and climbing function
- pneumatic clamping unit permits usage also in vertical pipes
- only very small access openings required
- convenient supply hose package of 30 m/98,40 ft
- control unit MICRO automatic with case optional available
- permanent monitoring of cutting operation due to colour camera with air/water cleaning
- great mobility convenience through compact Chassis
- damage prevention through automatic monitoring of internal pressure with signalling
- deep pipe insertion by fiberglass push rod possible
- variable cutting tools can be installed
- minimum downtimes in case of repair through operator-replaceable components or use of express service
- axial feed approx. 100 mm/4", manual and automatic creeping and climbing function (single or permanent movement)
- 30 m/98,40 ft supply hose on drum
- coupling elements for fiberglass push rod
- 400° rotating and approx. 90° swivel movement with stops
- air-powered cutter motor
- color camera with LED
- camera cleaning with permanent air and switchable water flushing
- splashproof according to IP 54
- waterproof device with 0.8 bar nitrogen filling
- permanent monitoring of internal pressure with signalling
- cable remote control with joystick for rotating (sensitivity adjustable) and swivelling, light control, switch for water, cutting motor and control of bladders; analogue video output
- 3,5" TFT LCD Monitor, storage picture/video (JPEG/MPEG) with SD card, USB, date and time display
- outside diameter of cutter: 72 mm
- overall dimensions: approx. L 660 x W 550 x H 800 mm (approx. 26" x 22" x 31")
- weight: approx. 55 kg
- completely assembled cutter on chassis with pneumatic and electrical rotary leadthrough
- detachable individual components
- accessory case with jobsite tools, valve extension, set of replacement screws, 1 carbide half globe cutting tool granulate, nitrogen filling adapter, thread extension, ball bearings and fins for air motor, operation manual, overview spare parts



MICRO AUTOMATIC PLUS - DN 80 up to 150/3 up to 6"

- large range of application in pipes from DN 80 up to 150/3 up to 6" (inside diameter), optional up to DN 250/10"
- excellent flexibility in bends up to 90° in DN 100/4" through rotating and swivel head
- high work efficiency due to axial feed of approx. 100 mm/4"
- usable also in difficult pipe situations due to manual and automatic creeping and climbing function
- pneumatic clamping unit permits usage also in vertical pipes
- only very small access openings required
- convenient supply hose package of 50 m/164 ft
- optional meter counting incl. data loading
- extremely high cutting force through powerful air motor
- flexible operation through cable remote control
- control unit MICRO automatic plus with case optional available
- permanent monitoring of cutting operation due to colour camera with air and water cleaning
- great mobility convenience through compact stainless steel chassis
- vehicle mounting kit optional available
- damage prevention through automatic monitoring of internal pressure with signalling
- minimum downtimes in case of repair through operator-replaceable components or use of express service
- permanent camera cleaning with air and switchable water flushing
- cable remote control with joystick for turning (sensitivity adjustable) and swivelling; light control; switch for water, cutter motor and control of bladders; analogue video output
- 3,5" TFT LCD monitor, storage picture/video (JPEG/MPEG) with SD card, USB, date and time display on demand
- splashproof according to IP 54
- waterproofed device with 0.8 bar nitrogen filling
- internal power supply for Tablet PC
- analogue video output on cable drum
- outside diameter of cutter: 72 mm
- completely assembled cutter on chassis with pneumatic and electrical rotary leadthrough and manual brake
- accessory case with jobsite tools, nitrogen valve extension, set of replacement screws, 1 carbide half globe cutting tool granulate, nitrogen filling adapter, thread extension, ball bearings and fins for air motor, Operation manual, overview spare parts
- dimensions of cable drum: L x W x H approx. 790 x 630 x 1050 (approx. 31" x 25" x 41")
- weight: approx. 57 kg



MICRO PREMIUM 50 m / 70 m

- large range of application in pipes from DN 80 up to 150/3" up to 6" (inside diameter), optional extendable up to DN 250/10"
- excellent flexibility in bends up to 90° in DN 100/4" through rotating and swivel head
- high work efficiency due to axial feed of approx. 100 mm/4"
- usable also in difficult pipe situations by manual and automatic creeping and climbing function
- pneumatic clamping unit permits use also in vertical pipes
- only very small access openings required
- convenient supply hose package of 50 m/164 ft or 70 m/230 ft
- optional meter counting incl. data loading
- extremely high cutting force through powerful air motor
- flexible operation by cable remote control and optional removable Tablet PC menu navigation with touchscreen
- permanent observation of cutting operation by colour camera with air and water cleaning
- great mobility convenience through compact stainless steel chassis
- vehicle mounting kit optional available
- damage prevention by automatic monitoring of internal pressure with signaling
- accessory case with job site tools
- different cutting tools can be installed
- minimum downtimes in case of repair through operator-replaceable components or use of express service
- axial feed approx. 100 mm/4", manual and automatic creeping and climbing function
- 400° turning and approx. 90° swivel movement with stops
- air powered cutter motor
- color camera with LED
- permanent camera cleaning with air and switchable water
- splashproof according to IP 54
- waterproofed device with 0,8 bar nitrogen filling
- permanent monitoring of internal pressure with signaling
- cable remote control „IMS Touch“ with 2 joysticks for turning (sensitivity adjustable), swivelling and axial feed, potentiometer for light control.
- Touchscreen control for water, cutter motor and control of bladders in manual and automatic mode.
- stable transport case



- optional operation from transport case or separately
- holding plate on cable drum for attaching the transport case (transport case rotatable and removable)
- Software for recording and playback of the video signal (software requirement Windows 8)
- internal power supply for Tablet PC
- Tablet PC (article number 016 54 060) optional available
- outside diameter of cutter: 72 mm
- completely assembled cutter on chassis with pneumatic and electrical rotary leadthrough and manual brake
- detachable individual components
- accessory case with jobsite tools, valve extension, set of replacement screws, 1 carbide half globe cutting tool granulate, nitrogen filling adapter, thread extension, ball bearings and fins for air motor, operation manual, overview spare parts
- dimensions of cable drum: L 790 x W 630 x H 1050 mm (31" x 25" x 41"), weight approx. 68 kg (50 m)/approx. 75 kg (70 m)



DRIVE CUTTING ROBOT 50 m / 100 m / 150 m

- very robust cutting robot for small and main sewers from DN 150 up to DN 400/6" - 16"
- high operating flexibility due to 3 freedom degrees (driving movement, rotation and swivelling of the cutting arm)
- powerful air-operated cutting motor
- precise operation by cable remote control with 2 joysticks for swivelling, turning and driving
- toggle switches for pressure rail, water cleaning, turning speed of the cutting arm, driving speed and cutter motor
- potentiometer for light control and turning speed of the cable drum (only activated in combination with the option 030 11 600 „automatic reeling“)
- control unit DRIVE with case optional available (omission of the standard control unit and of the 17" TFT monitor)
- cable remote control and cable drum also usable together with item number 020 22 000 IMS cutter DRIVE light
- perfect cutting control through integrated color camera with LED lighting, permanent camera cleaning by air and optional switchable water flushing
- long driveway through powerful carriage with pressure rail
- extremely short conversion time by changing nominal diameters
- comfortable supply hose package of 100 m/328 ft or 150 m/492 ft on cable drum
- optionally available with manual reeling, manual reeling with hand crank (optional) or automatic reeling (optional)
- optional meter counting incl. data loading
- vehicle mounting kit optional available
- low weight of robot allows introduction of robot without a crane or winch
- damage prevention through permanent internal pressure monitoring
- also usable together with inspection head MICRO cam
- outside diameter device: 120 mm
- electrically powered turning movement 400° / servo-pneumatic cutting arm swivelling approx. 200 mm/8"
- self-propelled carriage with pneumatic pressure rail for improved stability and traction
- different wheel sets for the nominal width range up to 400 mm/16"
- splash-water-protected according to IP54
- waterproofed device with 0,5 bar nitrogen filling



- cable remote control with 2 joysticks for swivelling/turning and driving. Toggle switches for pressure rail, water cleaning, turning speed of cutting arm, driving speed, automatic driving and cutter motor. 1 analogue BNC video output. Potentiometer for light control and turning speed of the cable drum
- 17" TFT monitor
- analogue video output on cable drum
- preparation internal power supply for Tablet PC (Tablet PC option article number 016 54 060)
- permanent monitoring of internal pressure with signalling
- 1 accessory case with job site tools, valve extension, nitrogen filling adapter, thread extension, ball bearings and fins for air motor, replacement screws, 1 cutting tool carbide granulate, operation manual, overview spare parts and extension parts
- dimensions of robot (DN 250/10"): approx. L 1150 x W 190 x H 175 mm (45" x 8" x 7"), weight approx. 21 kg
- dimensions of cable drum: approx. L 790 x W 630 x H 1050 mm (31" x 25" x 41"), weight approx. 88 kg (100 m)/104 kg (150 m)



DRIVE LIGHT CUTTING ROBOT 100 m / 150 m

- very robust, flexible cutting robot with outside diameter of 125 mm/5" for small pipes and sewers
- special crawler design allows insertion into smallest access openings (cleaning cuts/ports) and ensures a flexibility in bends of 45° in DN 150/6" and 67° in DN 200 - 400/8" - 16"
- powerful air-operated cutting motor
- toggle switches for pressure rail, water cleaning and cutter motor
- potentiometer for light control and turning speed of the cable drum (only activated in combination with the option 030 11 600 „automatic reeling")
- control unit DRIVE light with case optional available
- cable remote control and cable drum also usable together with item number 030 07 100 IMS cutter DRIVE
- perfect control of operation due to integrated colour camera with LED lighting, permanent camera
- damage prevention through permanent monitoring of internal pressure with signaling
- comfortable supply hose package of 100 m/164 ft or 150 m/492 ft on cable drum
- optionally available with manual reeling, manual reeling with hand crank (optional) or automatic reeling (optional)
- connectable to all common TV crawler with appropriate shear force, or manual Insertion by pushing or pulling
- optional with meter counting incl. data loading
- also usable together with inspection head MICRO cam
- electrically powered turning movement 400°/servo-pneumatic cutting arm swiveling approx. 200 mm/8"
- dismountable crawler with hinges (flexible 45° in DN 150/6")
- pneumatic pressure rail for improved stability and traction/connection for pushrods
- hook for pulling aid
- different wheel sets for the nominal width range up to DN 400/16"
- colour camera with LED and auxiliary lighting
- permanent camera cleaning by air
- waterproofed device with 0,5 bar nitrogen filling
- cable remote control with joystick for cutting arm swivelling and turning. Toggle switches for pressure rail, water flushing and cutter motor. Potentiometer for light control and turning Speed of the cable drum.
- analogue video output on cable drum

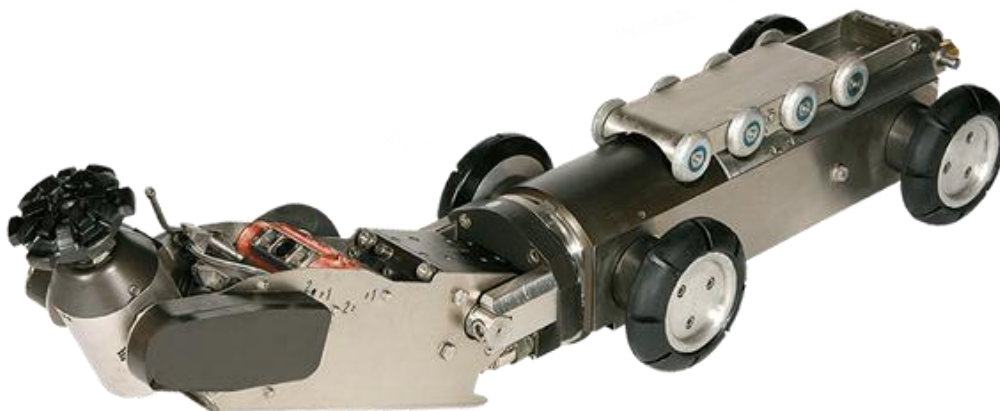


- preparation internal power supply for Tablet PC (Tablet PC option article number 016 54 060)
- permanent monitoring of internal pressure with signaling
- chassis for hose drum with pneumatic and electrical rotary leadthrough, manual reeling and manual brake
- splash-water-protected cable drum and control unit according to IP54
- 1 accessory case with job site tools, replacement screws, 1 cutting tool carbide granulate, Nitrogen filling adapter, thread extension, ball bearings and fins for air motor, operation manual, overview spare parts, extension parts
- dimensions of robot (DN 150/6") complete device with rear axle module: approx. L 634 x W 112 x H 117 mm (25" x 4,4" x 4,6"), weight approx. 14 kg
- dimensions of cable drum L 790 x W 630 x H 1050 mm (31" x 25" x 41"), weight approx. 88 kg (100 m)/104 kg (150 m)



Turbo DN 200 to 400 / 8" - 16"

- wide area of application in pipes of DN 200 to 400 / 8" - 16" (inner diameter), also with extension option up to DN 600 / 24" and for egg profiles
- Extremely short conversion periods when changing the nominal diameter
- Maximum flexibility thanks to four degrees of freedom (travel movement, turning / swivelling cutting head and swivelling the cutter motor)
- High cutting or processing depth for lateral repair
- Pneumatic pressure rail for better travel properties and optimum stability in the pipe
- Detachable carriage can also be used for „MULTISAN TURBO“ lateral repair system
- Extremely high cutting force due to ultra-powerful air motor
- Flexible operation owing to a mobile universal control unit
- Precise control of the cutting robot using 2 dynamic joysticks
- Permanent observation of the cutting process thanks to swivel colour camera with water and wipers
- Removable swivel camera / can also be used for MULTISAN repair system
- Cutting tool cooling via separate water nozzle
- Damage prevention through permanent internal pressure Monitoring with signalling and upset angle monitoring
- Various cutting tools can be attached (brush extension max. 100 mm)
- Convenient crane attachment for easy lowering into the sewer
- Extremely robust and durable system
- consist of carriage, cutting arm and swivel camera
- Air-powered cutter motor
- Circumscribed circle of the cutting robot 180 mm / 7"
- Operation via IMS universal control unit (not included)
- Media supply line via IMS universal cable drum 100 - 150 m / 328 - 492 ft (not included)
- Self-propelled with 3 speed levels, max. speed approx. 10 m/min / 32 ft/ min
- Extension parts for the nominal width range up to DN 400 / 16"
- Electrically powered turning movement 400° / swivel movement 90° / swivel movement of air motor 90° optional



- Integrated upset sensor to prevent the robot tipping over (display via universal control unit)
- Reverse travel sensor (display via universal control unit)
- Carriage and cutting head watertight and filled with nitrogen
- Swivel colour camera with 2 x 10 W halogen spots and 3 wiper blades
- 2 x 10 W additional halogen spots
- Water equipment (camera cleaning and tool cooling) optional
- Permanent internal pressure monitoring
- Max. tool diameter for concrete 120 mm / 5"
- Crane attachment
- Inspection glass with dial for determining the position of air motor
- 175 ml / oil tank for permanent lubrication
- Dimensions L x W x H approx. 1100 x 170 x 200 mm / 43 x 7 x 8", weight approx. 70 kg



Rehabilitation system MULTISAN

- suitable for rehabilitation of laterals/Service Connections, cracks, shards and joints
- two-component grouting material owns excellent adhesion properties on Inliner, stoneware and concrete
- rehabilitation by means of grouting also possible on wet surfaces in case of pressing ground water
- rehabilitation System is operated by IMS cutting Robot carriage
- rehabilitation depth from 15 cm up to max. 30cm / 6" up to 12"
- reduction of hardening time during top-hat Profile rehabilitation by switchable heating

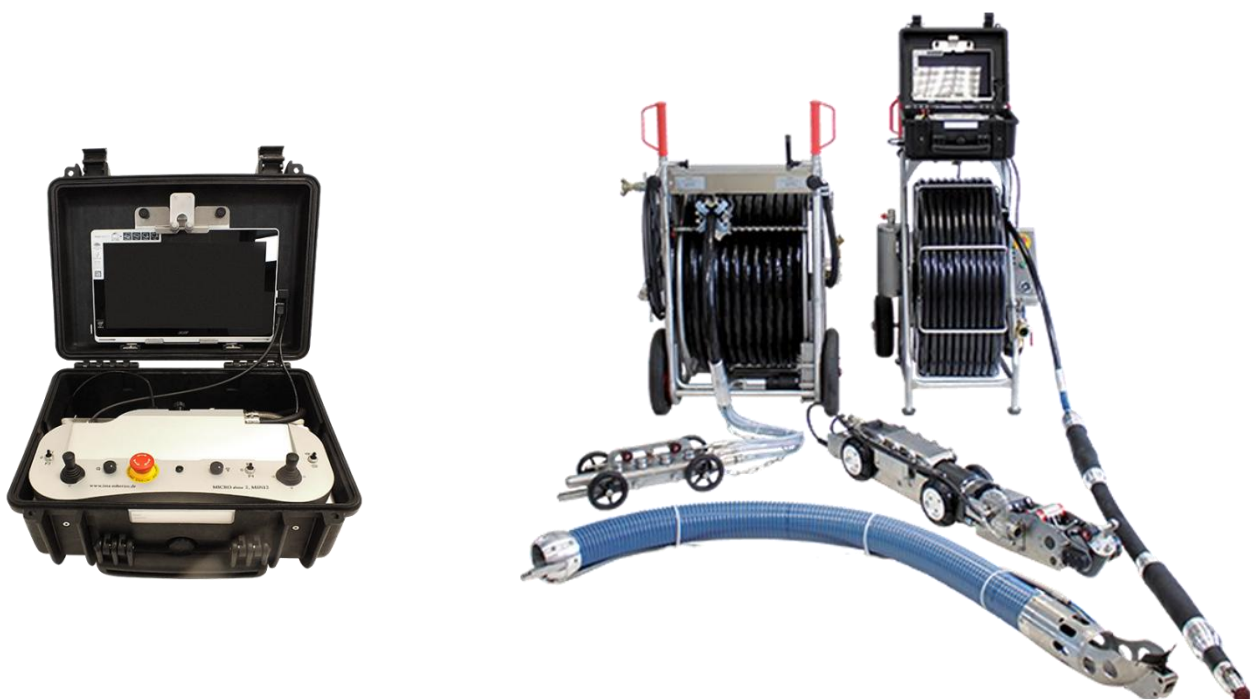
Application area:

- Top-hat Profile rehabilitation, long version
- DN 250 - 600 / 10" - 24"
- for longer Installation depth
- Application area:
- Grouting
- DN 250 - 600 / 10" - 24"
- also usable in case of ground water infiltration
- grouting of joints, cracks and shards
- Application area: Top-hat Profile rehabilitation DN 200 - 600 / 8" - 24" also usable in egg-shaped sections
- DN 300/450 - DN 500/750 - 12"/18" - 20"/30" flexible Exit angels and diameters



Satellite system – STL

- range of application in main sewer DN 200 - 600 / 8" - 24"
- insertion into laterals DN 100 - 150 / 4" - 6" possible
- for all preparatory rehabilitation work of laterals / service connection
- insertion of the system from the main sewer, only 1 manhole access required
- enables the removal of deposits, roots or other obstacles
- cutting and opening the pipe branches after rehabilitation
- pipe joints tightness test, inspection and high pressure flushing
- the both cutting robot systems can be used individually without any restriction
- individual connection to other carriages possible
- electrical hose drive with different wheel sets
- coupling elements DN 200 - 600/8" - 24" for connection to the IMS cutter TURBO
- additional rear camera with lighting and holder for IMS cutter TURBO
- transport pipe for IMS cutter MICRO automatic plus / MICRO premium
- operation by the universal control unit of the IMS cutter TURBO
- waterproofed device with 0.8 bar nitrogen filling
- protection class mind. IP 54
- toolbox with construction site tools, valve extension, spare lamps, spare screws, extension parts, spare part overview and operating manual
- dimension DN 200 - 250/8" - 10" (without TURBO carriage)
L x W x H: approx. 2700 x 176 x 160 mm/106" x 7" x 6"
- dimension from DN 250 - 600/10" - 24" (without TURBO carriage)
L x W x H: approx. 2450 x 198 x 150 mm/96" x 8" x 6"
- weight (without TURBO carriage) approx. 35 kg

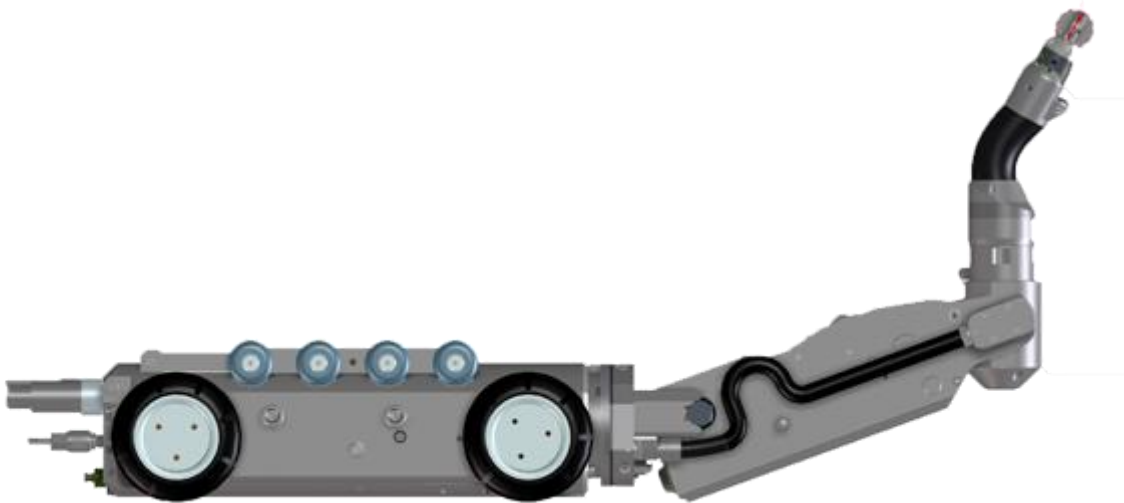


Lateral preparation system

DN 200 - 600/8"-24"

The intelligent Connection of two cutting robot systems for preparation of laterals:

- 6 degrees of freedom (driving and 5 turning/swivelling axes)
- operation from the main sewer DN 200 up to DN 600/8" up to 24"
- preparation of laterals from DN 80/3" up to 40cm/15 Inch depth
- two cameras for observing the Insertion and the cutting process



High-Pressure Water Technology CLEANER



CLEANERbasic

- camera-guided cleaning robot with rotating and swivelling
- nozzles for the targeted removal of contaminations and deposits in pipes by means of extra-high-pressure water
- jetting 200-1,000 bar
- NW 100-200, navigating bends starting from NW 100 (KG pipe starting from NW 125, 2 x 45°)
- adjustable speed, infinite rotation
- Work with jet from centre of pipe, with rotary-swivel drive (DSA)
- Colour camera with adjustable LED's for close-up and distance ranges, with a cleaning mechanism
- CLEANER is inserted
- An optionally available push nozzle is used to advance into the pipe and clean the piping
- When using the push nozzle, a maximum pressure of 200 bar may be used
- The push nozzle works as a switch nozzle, i.e. either the water is blasted out of the push nozzle (for the feed) or the water is blasted out of the working nozzle of the rotary-swivel drive (DSA); this means only one hose is necessary
- Lock: without lock
- NW adjustment: basic-parts 100-200 (skid sets)



CLEANERcomfort

- camera-guided cleaning robot with rotating and swivelling
- nozzles for the targeted removal of contaminations and deposits in pipes by means of extra-high-pressure water
- jetting 200-1,000 bar
- NW 100-200, navigating bends starting from NW 100 (KG pipe starting from NW 125, 2 x 45°)
- adjustable speed, infinite rotation
- Work with jet from centre of pipe, with rotary-swivel drive (DSA)
- Colour camera with adjustable LED's for close-up and distance ranges, with a cleaning mechanism
- CLEANER is inserted
- 6 powerful propelling nozzles at the end of the Cleaner are used to advance into the pipe and clean the piping (max. 200 bar)
- separate hose for feed; wheels for easier pushing
- Lock: 6 replaceable brake plates are pushed radially against the pipe wall; the water can run off
- NW adjustment: Extension plates with wheels and brake plates for bracing unit 100-200



UV-Curing Systems FLEXlight

Cable drum for max. 180 m curing cable

- Stainless steel frame
- Cable velocity 5 - 150 cm/min (max. 250 cm/min) controllable via control panel with PLC
- Cantilever with deflection pulley to ensure minimum bending radius of the cable
- Emergency operation via hand crank in case of power failure
- Control case with PLC for drum control
- Emergency operation without PLC possible with manual control

Curing cable

- Hybrid cable 48-wire plus coax, plug assembly on both sides
- Temperature-resistant cable up to 110 °Celsius (briefly 130 °C)

Energy supply

- Central feeding point according to VDE three-phase current 400 V / 32 A

UVA ignition system

- Ignition control and fuse protection of load circuits for max. 6 lamps ea. 400 W

PLC

- Software machine control and measuring data acquisition
- External analysis via USB stick transfer
- Video signal (analogue, digital)
- Detachable control case

Light source from DN 150

- Light source chain for 6 UVA lamps
- Navigation of 90° bends at bend radius $\geq 3 \times \text{DN}$, core diameter 82 mm
- 6 pcs UVA lamps 400 Watt, type: IMS Pipe Technology

Temperature-resistant colour camera in aluminium housing

Camera control integrated in cable drum

Tablet - PC (016 54 060) with video recording software

Basic end can set (DN 150-300/6"-12")

Deflection rollers set for curing cable

Ratchet straps and pull-in belts



UV-Curing Systems FLEX

Cable drum for max. 180 m curing cable

- Stainless steel frame
- Cable velocity 5 - 150 cm/min (max. 250 cm/min) controllable via control panel with PLC
- Cantilever with deflection pulley to ensure minimum bending radius of the cable
- Emergency operation via hand crank in case of power failure
- Control case with PLC for drum control
- Emergency operation without PLC possible with manual control

Curing cable

- Hybrid cable 48-wire plus coax, plug assembly on both sides
- Temperature-resistant cable up to 110 °Celsius (briefly 130 °C)

Energy supply

- Central feeding point according to VDE three-phase current 400 V / 3 A

UVA ignition system

- Ignition control and fuse protection of load circuits for max. 8 lamps ea. 400 W

PLC

- Software machine control and measuring data acquisition
- external analysis via USB stick transfer
- Video signal (analogue, digital)
- Detachable control case

Light source from DN 150

- Light source chain for 8 UVA lamps
- Navigation of 90° bends at bend radius $\geq 3 \times \text{DN}$, core diameter 82 mm
- 8 pcs UVA lamps 400 Watt, type: IMS Pipe Technology

Temperature-resistant colour camera in aluminium housing

Tablet - PC (016 54 060) with video recording software

Basic end can set (DN 150-300/6"-12")

Deflection rollers set for curing cable

Ratchet straps and pull-in belts



UV-Curing Systems UV 5200

Cable reel

- for 180 m/590 ft curing cable (max. 200 m/656 ft cable length possible)
- extension arm with deflection roller to ensure minimum bending radius of the cable
- all connections are hard-wired
- emergency operation via hand crank in case of power failure
- PLC with control panel

Curing cable

- hybrid cable assembled with plugs at both ends
- temperature resistant cable up to 150 °C/302 °F

Power supply

- central supply point according to VDE three-phase AC current

UVA-ignition system

- ignition control and protection of load circuit for 8 bulbs

Control unit

- industrial control with touch panel
- software, machine control, measurement data acquisition and evaluation
- software to read out data with an external PC (Windows)

Light source from DN 150/6"

- Light source chain for 8 UVA lamps
- Navigation of 90° bends at bend radius $\geq 3 \times \text{DN}$, core diameter 82 mm
- 8 pcs UVA lamps 400 Watt, type: IMS Pipe Technology

Temperature resistant colour camera in aluminium housing

Tablet - PC (016 54 060) with video recording software

Basic end can set (DN 150-300/6"-12")

Deflection rollers set for curing cable

Ratchet straps and pull-in belts



UV-Curing Systems UV 7800

Cable reel

- for 180 m/590 ft curing cable (max. 200 m/656 ft cable length possible)
- stainless steel chassis
- cable reel speed 0.05-2 m/min, controllable via PLC/industrial control with touch panel
- extension arm with deflection roller to ensure minimum bending radius of the cable
- emergency operation via hand crank in case of power failure
- PLC with control panel for cable reel control and emergency operation during control panel failure

Curing cable

- hybrid cable assembled with plugs at both ends
- temperature resistant cable up to 150 °C/302 °F

Power supply

- central supply point according to VDE three-phase AC current

UVA-ignition system

- ignition control and protection of load circuit for 8 bulbs

Control unit

- industrial control with touch panel
- software, machine control, measurement data acquisition and evaluation
- software for system control and recording of all relevant quality data
- software to read out data with an external PC (Windows)

Light source from DN 150/6"

- Light source chain for 8 UVA lamps
- Navigation of 90° bends at bend radius $\geq 3 \times \text{DN}$, core diameter 82 mm
- 8 pcs UVA lamps 400 Watt, type: IMS Pipe Technology

Temperature resistant colour camera in aluminium housing

Tablet - PC (016 54 060) with video recording software

Basic end can set (DN 150-300/6"-12")

Deflection rollers set for curing cable

Ratchet straps and pull-in belts



UV-Curing Systems UV 12000

Cable reel

- for 200 m/656 ft curing cable (max. 230 m/755 ft cable length possible)
- stainless steel chassis
- cable reel speed 0.055-4.0 m/min, controllable via PLC/PC
- extension arm with deflection roller to ensure minimum bending radius of the cable
- emergency operation via hand crank in case of power failure
- tensile force measurement

Curing cable

- hybrid cable assembled with plugs at both ends
- temperature resistant cable up to 150 °C/302 °F

Power supply

- central supply point according to VDE

UVA-ignition system (switching cabinet)

- ignition control and protection of load circuit for 12 bulbs

Control unit

- industrial control with 22" touch panel, incl. required wiring and interface for connection to the curing system
- software, machine control, measurement data acquisition and evaluation
- software for system control and recording of all relevant quality data
- software to read out data with an external PC (Windows)

Light source from DN 150/6"

- Light source chain for 8 UVA lamps
- Navigation of 90° bends at bend radius $\geq 3 \times \text{DN}$, core diameter 82 mm
- 8 pcs UVA lamps 400 Watt, type: IMS Pipe Technology

Light source 8 x 1000 W

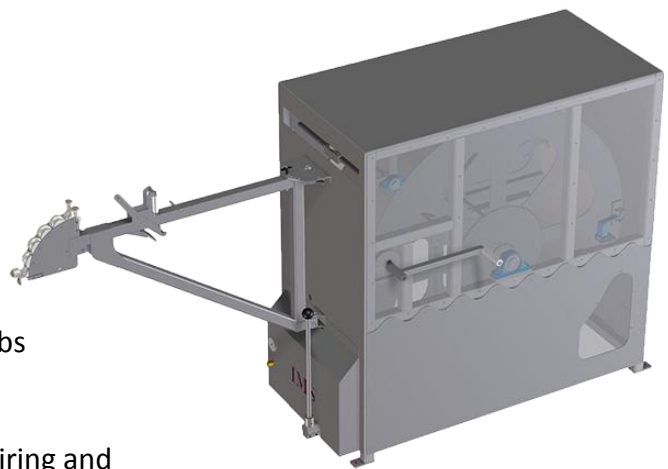
- 4 trolleys for 2 UVA lamps (1000 W) each, with spring-mounted wheels
- 8 UVA lamps 1000 W

Temperature resistant color camera in aluminum housing

Basic end can set (DN 150-600/6"-24")

Deflection rollers set for curing cable

Ratchet straps and pull-in belts



INTERSEWER (USB)

O'C Mechanical Services have been proud agents for Intersewer many years now. They are a High Quality brand name when it comes to Nozzles / Cutters & Sprayers.

Intersewer proudly distributes innovative, high quality sewer cleaning equipment, precision engineered and manufactured by the duly ISO EN 9001:2008 certified company USB Duesen in Germany to the highest technical standards.

These products are leaders in the industry and include nozzles, turbo chain cutters, milling cutters, speciality tools and accessories for the municipal and industrial markets.

USB sewer cleaning nozzles are manufactured with Advanced Optimized 3D Hydro Mechanics™. That means, the water coming from the pressurized hose is smoothly turned around in the nozzle chamber and guided directly into the ceramic nozzle inserts by means of 5 axial CNC precision machined, duly debured channels, not tubes or grooves. USB nozzles utilize tempered stainless steel; ceramic nozzle inserts thus providing unrivaled cleaning efficiency and durability. As a result USB nozzles can be used with recycled water too! Our goal is to enable our customers to increase their productivity and lower their operating costs by consuming less water, less time and less gas for the jetter trucks.

We also have a large range of chain cutters, specialist nozzles for grease, concrete, roots etc.



SPRAYERS

ALPHAJET MANHOLE CLEANING NOZZLE

The Alphajet cleaning nozzle is designed to clean lift stations and manholes prior to rehabilitations. The Alphajet is actuated by water coming from the pressurized hose of the jetter truck. Four driving nozzles cause the 360° revolution in a horizontal plane.

Advantages:

- No confined space entry needed
- No lubrication or replacement of internal mechanical parts within the first 12 months of operation, thus making this nozzle extremely user friendly
- Controlled rotation
- Driving nozzles can be extended to accommodate various sizes of manholes/liftstations

Applications:

Grease, sludge & crusts

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Stainless steel construction
- 1" hose connection
- Min. 30gpm – Max. 60gpm @ 1"

Part Number: 1-0350

Hose Connection: ¾" – 1"

Weight kg: 4.8



ALUMINUM FLYING NOZZLE – 3D

The Aluminum Flying nozzle 3D is the ideal hydrodynamic tool in mountainous and difficult terrain. The narrow angle of jet incidence and light weight of the nozzle all combine to guarantee powerful cleaning and unsurpassed traction.

Advantages:

- Light weight
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications: Mountainous, steep terrain

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics
- Replaceable threaded steel nozzle inserts
- Aluminum construction
- Rear jet incidence of 7°

- ¾"-1" threaded hose connection

- Min. 40gpm @ ¾"- Max. 80 gpm @ 1"



Part Number: 1-0160-VA

Hose Connection: ¾" – 1"

Weight kg: 0.8

Dia (mm): 70

Length (mm): 130

Nozzle Inserts: 8

Pipe Dia (mm): 150 – 300

ANTIBLASTER NOZZLE – 3D

The Antiblaster nozzle is just that! The specially designed angle of jet incidence reduces the probability of blowing toilets.

Advantages:

- Less likely to blow toilets
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

Shallow sewer lines and sewer lines close to homes

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Stainless steel construction
- Rear jet incidence of 37°
- 3/4" – 1" threaded hose connection
- Min. 30gpm @ 3/4" – Max. 80gpm @ 1"



BLACK BLASTER

The Black Blaster is an exceptional nozzle and a great alternative to a stainless steel nozzle. This nozzle offers high cleaning efficiency.

Advantages:

- Relatively inexpensive
- Can be pulled
- Different size skids for available for centering the nozzle
- Reduced water consumption
- Reduced operating costs

Applications:

General sewer cleaning

Technical Specs:

- Optimized Hydro Mechanics
- Replaceable threaded steel inserts
- Hardend tool steel construction
- Rear jet incidence is 18°
- 3/4" – 1" hose connection
- Min. 30gpm @ 3/4" – Max. 80gpm @ 1"



BLACK STAR

The Black Star nozzle is an excellent choice for general sewer lines cleaning at affordable pricing.

Advantages:

- Relatively inexpensive
- Reduced water consumption
- Reduced operating costs

Applications:

General sewer cleaning

Technical Specs:

- Optimized Hydro Mechanics
- Hardened tool steel
- Rear jet incidence is 15° & 25°
- 3/4" – 1 1/4" hose connection
- Min. 40gpm @ 3/4" – Max. 120gpm @ 1 1/4"



CHISEL NOZZLE

The Chisel nozzle performs excellently at difficult cleaning processes. The different forward-jet options and sharp edges assure fast and reliable cleaning.

Advantages:

- The forward jet can be replaced with a heavy duty drill point
- Our 1" Chisel nozzle has 8 rear jets for maximum propulsion and penetration
- Light weight, maneuverable
- Reduced water consumption
- Reduced operating costs

Applications:

Total obstructions, blockages and pipe deformations

Technical Specs:

- Replaceable threaded steel nozzle inserts
- Stainless steel construction
- Rear jet incidence is 22°
- Forward jet incidence is 0°
- Front jet incidence is 15°
- 1/2" – 1 1/4" hose connection
- Min. 14gpm @ 1/2" – Max. 120gpm @ 1 1/4"



CHISEL NOZZLE WITH DRILL POINT

The Chisel nozzle w/ drill point performs excellently at difficult cleaning processes. The drill point and sharp edges assure fast and reliable cleaning. The forward-jets in combination with the drill point penetrates and removes total blockages.

Advantages:

- The forward jet can be replaced with a heavy duty drill point
- Our 1" Chisel nozzle w/ drill point has 8 rear jets for maximum propulsion and penetration
- Light weight, manuverable
- Reduced water consumption
- Reduced operating costs

Applications:

Total obstructions, blockages and pipe deformations

Technical Specs:

- Replaceable threaded steel nozzle inserts
- Stainless steel construction
- Rear jet incidence is 22°
- Front jet incidence is 15°
- 1/2" – 1 1/4" hose connection
- Min. 14gpm @ 1/2" – Max. 120gpm @ 1 1/4"



CLEANING NOZZLE – 3D

The Cleaning nozzle 3D is a perfect nozzle for preventative maintenance and all around sewer cleaning. The rear inserts are at two different angles of jet incidence. This permits the nozzle to move material back towards the manhole while continuing to clean and propel up the pipeline.

Advantages:

- Available in a large 10 jet version
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

Excellent choice for sand, mud, silt, crust and grease applications

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Stainless steel construction
- Rear angle of jet incidence is 15° & 25°
- 1/2" – 1 1/4" hose connection
- Min. 12gpm @ 1/2" – Max 120gpm @ 1 1/4"



DREDGER NOZZLES – 3D

The Dredger nozzles use Optimized Hydro Mechanics™ to take the water coming from a pressurized hose and convert it into unrivaled cleaning power. The roll bars allow the nozzle to upright itself in the line. All of the rear jets are concentrated on the bottom of the pipe.

Advantages:

- Can be used in tandem with another dredger nozzle
- Available in different sizes: 6, 8, 10, or 14 jets
- Tremendous cleaning power
- Reduced water consumption
- Reduced operating costs



Applications:

For removal of heavy solids, silt sand and sludge at the bottom of a pipe.

Technical Specs:

- Optimized Hydro Mechanics™
- Replaceable threaded ceramic inserts
- Stainless steel construction
- 3/4" – 1 1/4" hose connection

FJ PENETRATOR – 3D

This nozzle has been designed to successfully navigate over offsets in the pipe. The FJ Penetrator removes obstructions and opens total blockages in no time.

Advantages:

- No sharp edges
- Increased performance and efficiency
- Reduced water consumption
- Reduced operating costs

Applications:

Total blockages or obstructions in sewer lines

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Stainless steel construction
- Rear jet incidence of 15° and 25°
- Front Jet Incidence is 0° and 15°
- 1/2" – 1" threaded hose connection
- Min. 18gpm @ 1/2" – Max. 80gpm @ 1"



FLYING NOZZLE – 3D

The 3D Flying nozzle is an ideal tool for some of the toughest applications. The narrow angle of jet incidence gives this nozzle incredible traction and cleaning power.

Advantages:

- Available in a large version
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs



Applications:

Preventative maintenance and hilly difficult terrain. Large debris removal

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics
- Replaceable threaded ceramic inserts
- Stainless steel construction
- Rear jet incidence is 7°
- 1/2" – 1 1/4" threaded hose connection
- Min. 13gpm @ 1/2" – Max. 120gpm @ 1 1/4"

GRAND SLAM NOZZLE – 3D

The Grand Slam nozzle 3D is impressive and able to clean and move material in an effective manner. The 8 rear jets provide powerful traction.

Advantages:

- Two different angles of rear jet incidence
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

For all around sewer cleaning



Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Stainless steel construction
- Rear angle of jet incidence is 12° & 18°
- 3/4" – 1 1/4" hose connection
- Min. 50gpm @ 3/4" – Max. 120gpm @ 1 1/4"

PIPE WOLF

The Pipe Wolf is a unique nozzle. A tempered stainless steel head is turbine driven and spins at approx. 6000 – 12000 rpm. For extreme applications, this is a highly efficient tool. The Pipe Wolf succeeds where standard hydrodynamic tools fail, thus increasing your productivity and reducing your operating cost. The Pipe Wolf should be a standard sewer cleaning tool on your truck, it is very impressive.

Advantages:

- Low maintenance, no lubrication required
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

Total obstructions and blockages caused by roots, silt, grease etc.

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Stainless steel body & tempered stainless steel head
- Rear angle of jet incidence is 22°
- 1/2" – 1" threaded hose connection
- Min. 13gpm @ 1/2" – Max. 80gpm @ 1"



PRIMUS NOZZLE™ – 3D

The Primus™ is a sewer cleaning nozzle with controlled rotation speed. Our Primus™ is operated by water coming from a pressurized hose. The controlled rotation occurs because the angle of jet incidence in the cleaning head works in conjunction with internal high performance ceramic clutch discs.

Advantages:

- No lubrication or replacement of internal mechanical parts within the first 12 months of operation, thus making this nozzle extremely user friendly
- Can be used in combination with a continuously adjustable flexible guide skid to center in the pipe
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

Grease, scale, crusts and roots

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts in the head
- Replaceable threaded steel inserts in the rear
- Stainless steel body construction
- Stainless steel skid construction
- Rear angle of jet incidence is 15°
- Rear of the head jet incidence is 45°
- Forward jet incidence is 18°
- 1/2" – 1 1/4" hose connection
- Min. 14gpm @ 1/2" – Max. 120gpm @ 1 1/4"



RADIAL CLEANING NOZZLE – 3D

This high performance nozzle is perfect for removing hard grease and scale that may be encrusted on the interior wall of the pipe. The fan jets clean the pipe interior all around, while the propulsion nozzle inserts provide superior transportation of obstructions to the manhole.

Advantages:

- Streak free cleaning
- All around pipe coverage
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

Excellent for grease(encrusted), scale, sand and silt

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Replaceable threaded steel fan jets
- Tempered stainless steel construction
- Rear jet incidence @ 15°
- Rear fan jet incidence @ 45°
- 3/4" – 1 1/4" hose connection
- Min. 40gpm @ 3/4" – Max. 120gpm @ 1 1/4"



ROCKER NOZZLE

The newly designed and engineered "Rocker Nozzle" from USB Duesen GmbH is a vibrating sewer cleaning nozzle. Similar in looks to the Rotor nozzle the "Rocker" is able to remove the toughest deposits from the bottom of 4"-24" pipelines. The offset rotation of the rotor causes aggressive vibration which breaks up the deposits. **ATTENTION:** The "Rocker Nozzle" is intended for use in plastic (HDPE, PVC etc..) and cast iron pipes only. Never use it in clay and concrete pipes!!!

Advantages:

- Removal of solid material on the bottom without damaging the pipe
- Can be used in confined pipe areas where chain cutters can't fit
- Low maintenance, no lubrication required
- Doesn't require bushings or bearings

Applications:

Landfills and also removal of concrete and deposits such as calcium

Technical Specs:

- Replaceable threaded ceramic and stainless steel inserts
- Stainless steel body and non corrosive brass
- Rear jet incidence is 22°
- 1"-1 1/4" hose connection
- Min. 50gpm @ 3/4"
- Max. 120gpm @ 1 1/4"



ROTOR NOZZLE

Uniform rotary motion of the rotor allows constant and thorough cleaning of the interior wall of the pipe.

Advantages:

- Doesn't require bushings or bearings
- Low maintenance

Applications:

Grease, light crusts and roots.

Technical Specs:

- Replaceable threaded ceramic nozzle inserts
- Stainless steel body & non corrosive brass
- Rear jet incidence is 22°
- 45°, 90° & 75° rotor jet incidence
- 1/4" – 1 1/4" hose connection
- Min. 10gpm @ 1/4" – Max. 120 @ 1 1/4"



STANDARD NOZZLE

The Standard nozzle is very basic. It has rear jets and one forward penetrating jet which can be blocked.

Advantages:

- Light, maneuverable version
- Inexpensive, yet highly efficient

Applications:

All around sewer cleaning

Technical Specs:

- Stainless steel construction
- Rear jet incidence is 22°
- 1/4" – 1 1/4" hose connection
- Min. 10gpm @ 1/4" – Max. 120gpm @ 1 1/4"



SUPER SLAM NOZZLE – 3D

The Super Slam 3D nozzle is a very powerful and impressive nozzle. The two different angles of rear jet incidence in combination with 12 jets offer extraordinary cleaning power & traction.

Advantages:

- Heavy
- Number of jets
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

For use in large sewer- and stormwater lines.

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Stainless steel construction
- Rear angle of jet incidence is 15° & 30°
- 3/4" – 1 1/4" hose connection
- Min. 55gpm @ 3/4" – Max. 120gpm @ 1 1/4"



SUPERIOR PENETRATOR NOZZLE – 3D

The Superior Penetrator Nozzle 3D has a specific design to successfully navigate over small voids in the pipe. The placement of the Advanced 3D Hydro Mechanics in the nozzle is no more than 3/4" away from the hose connection. Thus, no turbulence inside the nozzle is created.

Advantages:

- Has a forward jet or pulling eye option
- Length of the nozzle
- Reduced water consumption
- Reduced operating costs

Applications:

Pipe lines with off-sets, drop joints, voids etc. Mud, silt and sand.

Technical Specs:

- Advanced Optimized 3D Hydro Mechanics™
- Replaceable, threaded ceramic nozzle inserts
- Stainless steel construction
- Rear jet incidence is 12°
- From 3/4" – 1 1/4" threads
- Min. 30 gpm @ 3/4" – Max. 120gpm 1 1/4"



TWISTER NOZZLE

The Twister rotary sewer nozzle is designed for cleaning 6" to 24" sewer and storm-water pipelines. The Twister nozzle is operated by water coming from a pressurized hose and comprises of three components. The drive contains four propulsion jets, is constructed of stainless steel and requires no lubrication. The drive also features a unique magnetically controlled rotation. The stainless steel cleaning head includes six high performance ceramic inserts, two of which are in the front for opening blockages. The nozzle is equipped with a rugged, adjustable guide skid. The Twister nozzle is designed to operate in the toughest conditions such as grease, scaling, roots and tuberculation.

Advantages:

- Unrivalled performance, high efficiency
- It can be used with recycled and potable water.
- Low maintenance, no lubrication required

Applications: Grease, scaling, roots and tuberculation

Technical Specifications:

- Replaceable threaded ceramic nozzle inserts
- Stainless steel body and cleaning head
- Rear jets incidence 30°
- Rotor jets incidence 45°
- ¾"-1 ¼" hose connection
- Min. 50 GPM @ ¾"
- Max. 120 GPM @ 1 ¼"



ULTIMATE CHISEL NOZZLE

The NEW Ultimate Chisel nozzle performs excellently at difficult cleaning processes, especially when pipe deformations caused by outer pressure or total blockages are present.

The different forward-jet options and sharp edges assure fast and reliable cleaning. With bigger inserts. Nozzle can be used with Recycler trucks as well.

Advantages:

- Penetrates solid root masses and total blockages
- Drill tip has two jets
- Relatively inexpensive

Applications:

Total obstructions, blockages and pipe deformations

Technical Specs:

- Replaceable threaded ceramic nozzle inserts or stainless steel
- Tempered stainless steel nozzle construction
- Threaded replaceable drill point
- Rear jet incidence of 22°
- Min. 40gpm @ ¾" – Max. 120gpm @ 1 ¼"



VENTURI NOZZLE

Venturi nozzles, also known as ejector nozzles use the water coming from a pressurized hose. The water is smoothly turned around into an ejector thus creating a vacuum in the suction barrel. The high performance of the Venturi nozzle is only guaranteed if sufficient operating water is available. That means, depending on the size of the sewer or stormwater line, the Venturi nozzle has to be completely submerged under water because the water level drops significantly once the Venturi nozzle has been put into operation. USB-Sewer Equipment Corporation utilizes one concentrated water jet (one thick bundled jet provides a much higher efficiency than six small, thin water jets). The ejector connected to the high pressure stainless steel pipe is centered in front of the suction pipe and secured with flat, stainless steel bars. This eliminates the risk of debris blocking the suction pipe and / or damaging the ejector.

Advantages:

- The vacuum is able to remove large quantities of material towards the manhole
- Can clean large pipelines with high flow
- Doesn't require high PSI to operate
- Reduced water consumption
- Reduced operating costs

Applications:

Large sewer lines 32" + with sand, silt, mud

Technical Specs:

- Replaceable threaded nozzle tip
- Tempered stainless steel construction
- 1" – 1 1/4" hose connection
- Min. 60gpm @ 1" – Max. 120gpm @ 1 1/4"



CHAIN CUTTERS

TURBO 0 CHAIN CUTTER

This innovative, highly reliable and efficient product offers superior drive and thrust. The chain retainer is driven by a high performance turbine thus achieving unsurpassed results in the removal of roots, grease and mineral deposits in 4" pipe lines.

ADVANTAGES:

- Perfect for working in laterals
- Low maintenance (lubrication is not necessary)
- Easy and fast changeable chain retainers
- Capable of being used with recycled water
- Reduced water consumption / Reduced operating costs

APPLICATIONS:

For removing obstructions such as roots, calcium, grease, scale and crust.

TECHNICAL SPECS:

- Advanced Optimized 3D Hydro Mechanics
- Replaceable threaded ceramic nozzle inserts
- Stainless steel construction, Double sealed stainless steel bearings
- Min. 14gpm @ 1/2" to Max. 80gpm @ 1"



TURBO II FLEXIBLE CHAIN CUTTER

This innovative, highly reliable and efficient product offers superior drive and thrust. The chain retainer is driven by a high performance turbine thus achieving unsurpassed results in the removal of roots, grease and mineral deposits.

Advantages:

- Continuously adjustable skid from 6"-12" and can be adjusted in 1/16" increments if necessary
- Can be used in difficult pipe that has drop joints and off sets etc...
- Different cutting attachments for different applications allows the Turbo II Flexible to be more versatile
- Low maintenance (lubrication is not necessary)
- Easy and fast changeable chain retainers
- Capable of being used with recycled water
- Reduced water consumption / Reduced operating costs

Applications:

Extensive root growth and total blockages. Also, for removing obstructions such as calcium, grease, scale and crust.

Technical Specs:

- Optimized Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Aluminum body construction
- Stainless steel skid construction, Double sealed stainless steel bearings
- Min. 40gpm @ 3/4" to Max. 120gpm @ 1 1/4"



TURBO II RIGID CHAIN CUTTER

This innovative, highly reliable and efficient product offers superior drive and thrust. The chain retainer is driven by a high performance turbine thus achieving unsurpassed results in the removal of roots, grease and mineral deposits.

Advantages:

- Each skid is size specific 6", 8", 10" or 12"
- Lightweight for use in hilly terrain
- Low maintenance (lubrication is not necessary)
- Easy and fast changeable chain retainers
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

For removing obstructions such as roots, calcium, grease, scale and crust

Technical Specs:

- Optimized Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Aluminum body construction
- Stainless steel skid construction
- Double sealed stainless steel bearings
- Min. 18gpm @ 1/2" to Max 120gpm @ 1 1/4"



TURBO III FLEXIBLE CHAIN CUTTER

This innovative, highly reliable and efficient product offers superior drive and thrust. The chain retainer is driven by a high performance turbine thus achieving unsurpassed results in the removal of roots, grease and mineral deposits from 10" – 20" pipelines. An extension kit paired with a chain retainer wheel allows the cutter to expand up to 29"

Advantages:

- Continuously adjustable skid from 10"-29" and can be adjusted in 1/16" increments if necessary
- Different cutting attachments for different applications makes the Turbo III Flexible versatile
- Can be used in difficult pipe that has drop joints and offsets etc...
- Low maintenance (lubrication is not necessary)
- Easy and fast changeable chain retainers
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs

Applications:

For removing extensive root growth and total blockages. Also, for removing obstructions such as calcium, grease, scale and crust.

Technical Specs:

- Optimized Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Aluminum body construction
- Stainless steel skid construction
- Double sealed stainless steel bearings
- Min. 50gpm @ 3/4" – Max. 120gpm @ 1 1/4"



TURBO IV FLEXIBLE CHAIN CUTTER

This innovative, highly reliable and efficient product is made of tempered stainless steel and offers superior drive and thrust efficiency. The chain retainer is driven by a high performance turbine thus achieving unsurpassed results in the removal of roots, grease and mineral deposits from 15" – 36" sewer lines. The chains are not rigid, and do not damage the pipes in any way. Off sets? No problem with continuously adjustable guide skid!

Advantages:

- Low maintenance (lubrication is not necessary)
- Easy and fast changeable chain retainers
- Low operating costs, inexpensive replacement chains
- Continuously adjustable guide skids 15" – 36" sewer lines
- Threaded ceramic nozzle inserts
- For use with difficult pipes (off-sets, drop-joints etc.)
- Usable with recycled water



Applications:

For removing extensive root growth and total blockage | For removing obstructions, such as calcium, grease, scale and crust

Technical Specs:

- Turbo IV with easy and fast adjustable guide skid 15" – 36" sewer lines
- Stainless steel construction

TURBO S400 CHAIN CUTTER

This innovative, highly reliable and efficient product offers superior drive and thrust. The chain retainer is driven by a high performance turbine thus achieving unsurpassed results in the removal of roots, grease and mineral deposits.

Advantages:

- Continuously adjustable skid from 8"-16" and can be adjusted in 1/16" increments if necessary
- Can be used in difficult pipe that has drop joints and off sets etc...
- Different cutting attachments for different applications allows the Turbo S400 to be more versatile
- Low maintenance (lubrication is not necessary)
- Easy and fast changeable chain retainers
- Capable of being used with recycled water
- Reduced water consumption
- Reduced operating costs



Applications:

Extensive root growth and total blockages.

Also, for removing obstructions such as calcium, grease, scale and crust.

Technical Specs:

- Optimized Hydro Mechanics™
- Replaceable threaded ceramic nozzle inserts
- Aluminum body construction
- Stainless steel skid construction
- Double sealed stainless steel bearings
- Min. 50gpm @ 3/4" to Max. 120gpm @ 1 1/4"

Milling Cutters

MILLING CUTTER TYPE II & III



This innovative reliable milling cutter is made of tempered steel and offers superior drive and thrust efficiency. The drive itself is made of tempered stainless steel comprising of one shaft and two double sealed bearings. This eliminates the need for any hydraulic motors and therefore any lubrication, ensuring years of low maintenance operation. The milling heads come complete with carbide bits duly bonded onto stainless steel bodies, one diamond center bit with cooling device and diamond bits. The Turbine ring with fins does not only increase the torque but also provides a straight tracking ability. All milling cutters are capable of removing the toughest deposits such as hard grease, concrete and scale of all kinds, even tuberculation in cast iron pipes. Protruding tabs will be cut gently without damaging the line.

Pipe Dia = 100mm / 125mm

Bore Dia = 95mm / 100mm

Weight = 8Kgs / 9Kgs

MILLING CUTTER TYPE IV/1 & IV



Pipe Dia = 150mm

Bore Dia = 140mm

Weight = 12Kgs

MILLING CUTTER TYPE V & VI



Pipe Dia = 250mm

Bore Dia = 222.5mm

Weight = 19Kgs

MILLING CUTTER TYPE VII

Pipe Dia = 300mm
Bore Dia = 281.25mm
Weight = 20Kgs



MILLING CUTTER TYPE VIII

Pipe Dia = 400mm
Bore Dia = 360 mm
Weight = 38Kgs



MILLING CUTTER TYPE X

Pipe Dia = 450mm
Bore Dia = 425mm
Weight = 50Kgs



MILLING CUTTER TYPE XII

Pipe Dia = 500mm
Bore Dia = 475mm
Weight = 53Kgs



TROGLOTECH

Troglotech is an established and fast growing CCTV manufacturer with worldwide distributors. Established in 2004, Troglotech designs and manufactures reliable and robust CCTV systems into the drainage, water, gas and oil industries

Troglotech introduce the new Trogloprobe Entry Level Inspection System as the ultimate in ruggedness, reliability and ease of operation. The simple, uncluttered appearance belies the features included or available such as integral solid-state video recording, full function text writer with meterage display, six-hour lightweight battery pack and mini-mainline ready controller. Coupled with Troglotech's well proven T800 Troglacam and flexible configuration possibilities, Trogloprobe offers both a solid entry-level inspection product with extensive potential for expansion.

Features and benefits

- Fast set-up. Flip up display, turn on and use.
- Light weight, base system only 17kg
- Flexible configuration. Can be reconfigured in seconds for flat or upright operation.
- CAD optimised design for minimum weight and maximum ruggedness.
- Low voltage or Power-Cell operation for maximum site safety and convenience.
- High quality aluminium housings machined from solid and sealed to IP67.
- Extensive future upgrade path up to minimainline level
- Well proven camera design
- Complete system is fully waterproof to IP67 allowing operation in all weathers
- Optional integral Digital Video Recording to CF card in universal MPEG4 format.
- Simple "VCR" style recording controls with "one touch" record and play.
- Fully compatible with Wincan reporting software.
- The Trogloprobe is a Wincan approved system.

T804 System Options

Base System Comprises:-

- Coiler with 60m of pushrod
- T804 Display unit
- High capacity battery pack
- Meterage counter
- 12v DC power lead
- T804 Self levelling camera
- 100 & 150mm Brush skid set
- Available upgrades:-
- T804 Keyboard/Textwriter
- Integral Digital Video Recorder
- Standalone CF to DVD burner
- Inline sonde

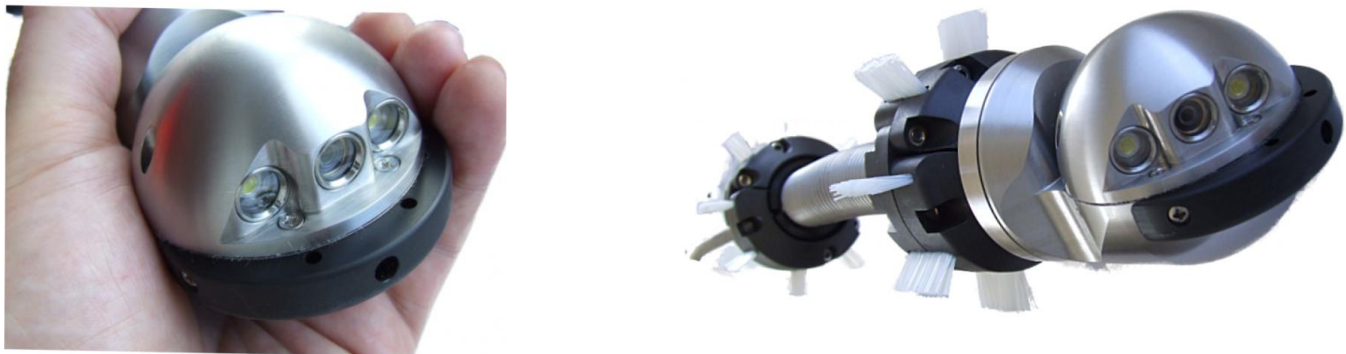


TROGLOTECH T812 PAN & TILT CAMERA

Surveying pipelines with a standard pan and tilt camera can be confusing – when tilting, the picture rotates with the camera head – turning the world upside-down! Not with Troglotechs T812 though – with our Human Perspective View the picture always stays the right way up – just like a human would view a pipeline if small enough to fit in the pipe. This feature makes surveys more intuitive and understandable to the end customer.

As with all our cameras, the T812 is machined from highgrade stainless steel and the rotating parts are sealed with fibre dirt seals, quad-rings and o-rings to ensure a long service life. The camera is fitted with a sacrificial buffer to survive the knocks that are inevitable in our profession, the windows for the lens and custom LED s are sapphire. At a maximum diameter of 60mm, the T812 can survey 4 (100mm) pipes to 6 (150mm) when fitted to our standard brush skid set. We can supply an adjustable skid for use in 6 (150mm) to 12 (300mm) pipes.

The custom LED lighting can illuminate up to ~36 (~1000mm) dependant on material. The picture, as expected with Troglotech products, is sharp and faithfully captures the true scene colours. We don t use off the shelf camera modules – we design our own for specific use in pipeline cameras – it s a harsh environment and we design for it.



TROGLOTECH T710 ONE-INCH CAMERA

Small cameras usually require a compromise in picture quality – but not with our T710 one-inch camera. We use a patented design to provide exceptional lighting and perfect picture quality. We use our own camera module to truly reflect the scene being viewed.

Waterproof to IP68, the T710 camera can be supplied with 20 metres of hyper-flexible rod which is housed in a small coiler cage. The cage can be fitted inside the T804 Trogloprobe coiler, or to the outside. Alternately, the T710 camera head can be fitted to the end of the T804 rod using an adaptor Unlike many other one-inch cameras, our camera is not potted and can be serviced.



TROGLOTECH T800 AUTO-UPRIGHTING CAMERA

A camera on a push-rod system has a hard life, even when protected by a skid set. It is inevitable that the camera is going to be bouncing off displaced-joints and coming across solid debris.

At Troglotech we have been designing cameras for over thirty years and we know how to build a reliable camera that is going to provide the robustness needed in our profession. We also know how to produce a camera with the sharpest, noise-free picture that faithfully reproduces the scene.

There are thousands of Troglotech T800 cameras in use every day throughout the world, in the harshest environments. This is the standard camera fitted to our Trogloprobe push-rod system, it is also employed as a replacement camera on other systems. As with all our cameras, the T800 is machined from highgrade stainless steel and the rotating parts are mounted on precision bearings to ensure a long service life. The internal mechanism is isolated from the outer body with the use of Nitrile shock-absorbers.

The camera is fitted with a heavyduty 300-grade stainless steel guard to survive the knocks that are inevitable, the window for the lens is 5mm-thick sapphire. At a maximum diameter of 48mm, the T800 can survey 3 (75mm) pipes to 6 (150mm) when fitted to our standard brush skid set. We can supply an adjustable skid for use in 6 (150mm) to 12 (300mm) pipes. The custom LED lighting can illuminate up to ~36 (~1000mm) dependant on material.



RSM LINING SUPPLIES

In late 2014, O'C Mechanical Services added another string to their bow by becoming the Irish distribution centre for RSM Lining Supplies.

They are experts in Drain re-habilitation and have quickly become market leaders in this field. The company supplies highest quality materials and innovative products.

SPRINGBOK LATERAL CUTTER

DESCRIPTION: Simple, robust Lateral Cutting system

SUITABLE FOR DIAMETERS: 70mm – 300mm

INCLUDES: 25m range. 75mm, 10mm and 150mm set ups and cutting heads to suit.

Developed by Springbok technology, the lateral cutter is a cost effective system which allows you to re-open laterals in pipe diameters from 100mm to 300mm.

The cutter is operated by a handle bar linked to a number of steel cane rods which control the way the cutter moves down the pipe. The handle bars also control the cutter movement from side to side as well as forward and backwards, ensuring all areas of the lateral are re-opened.

The handle bar also drives the function of speed, lifting and lowering of the air motor/cutting head, to press against and cut the lateral.

This is an air driven system and benefits from all associated airlines being contained in an umbilical hose, making the system very robust and user friendly. The control box houses a regulator and lubricator allowing this machine to work in all climates.

Extra skids can be supplied and motor extensions to allow the cutter to work in larger pipes.

Full hire, sales, service and repair for the Springbok systems available.



DOWN THE BRANCH CUTTER



MATERIAL: Steel bodied

USE: Air tool for cutting out 75mm to 150mm laterals from the branch side.

This small but extremely powerful cutter, locates the exact position of any junction by cutting through the liner from the branch side. The cutter quickly and easily opens up a hole in the liner in exactly the right position.

Depending on the access, this tool can either totally re-open the connection giving a perfect finish or if access is very tight it can simply open a small hole. This will allow a lateral cutter to re-visit at a later time and fully open the connection. Both sizes of the DTB can also be used to root cut, using a high tensile wire cup brush.

5:1 Motor – up to 65° bends

The 5:1 ratio motor is the most powerful, offering higher torque but slightly less revs.

3:1 Motor – up to 90° bends

The 3:1 ratio version is slightly smaller making it more maneuverable. The 3:1 offers high revs but slightly less torque than the more powerful 5:1 motor.

DTB cutters include:

100mm and 150mm skid setup

Short flexible airline

10m telecom rods

Small 3/8 inch adaptor

M14 thread adaptor

70mm wire cup brush

50mm carbide cone or dome

Tool Kit for maintenance and adjustment.

We have an extensive range of accessories to enhance the tools usability.



CUTTING HEADS



MATERIAL: Tungsten carbide, diamond coated or diamond tipped.
More variants of shape and size available on request.

WIRE BRUSH

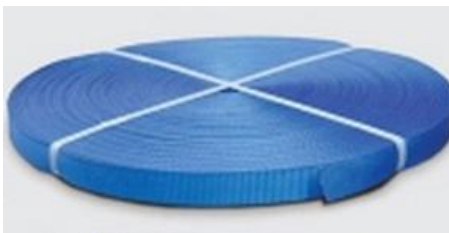
MATERIAL: Stiff, high tensile, stainless steel wire

USE: Use in conjunction with the down the branch cutter

CAPABILITIES: Will cut out liner in a matter of minutes, they can also be used for removal of blisters in reformed pitch fibre, and sections of root cutting.



BAND-IT STRAPPING 19mm



BAND-IT TOOL



BAND-IT BUCKLES



VACUUM PUMP



Units available in 110 volt and 240 volt and 3 Phase.

A large range of vacuum pumps for both on site and factory impregnation. The pumps listed on here are all electric with the 110v and 240v being portable and suitable for small diameter liners on site (240v up to 300mm diameter). The large Industrial 3 Phase vacuum pump is suitable to draw as much as 40m³ of air per hour, this unit is ideal for use in factory impregnations, and is capable of running up to 4 separate suction lines. Comes complete with T piece, 1/2 inch suction hose and 2 vacuum pumps. This is suitable for most hot cure liners up to 1000mm diameter. Pumps available to draw anything from 6 to 60M³ of air per hour are available on special order.

PINCH ROLLERS

USE: Aid the resin absorption and motion through the felt liner during the impregnation process.

OPERATION: Manual

CAPABILITIES: Up to 300mm liners

Each roller has its own merits and is easy to use. The floor mounted rollers have been designed to make them non-slip. Other than the nip rollers all of our pinch rollers are designed to accommodate 100mm to 300mm liner. Roller beds can be attached to the premium rollers and one set of legs fold away for storage and transportation. The KrasoWalk 300 is uniquely designed to fold into a suitcase, making it easy to carry and transport. It can also come mounted to a stand. There is a scale on the side of the rollers, allowing precise operation.

Nip Rollers: 100 – 150mm liners

Floor mounted: 100 – 300mm liner

Standard with stand: 100 – 300mm liners

Premium with stand: 100 – 300mm liners

Kraso Walk 300: 100 – 300mm liners



GLASS MAT



MATERIAL: Economy = E glass combi matting 1080g per sq m, Standard = ECR glass combi matting 1080g per sq m and Radius = ECR biaxial matting.

SIZES: Available in 1.25m and 2.5m wide rolls. Approximately 55kg.

FEATURES: Specially formulated coating for increased chemical resistance and compatibility with poly silicate resin types.

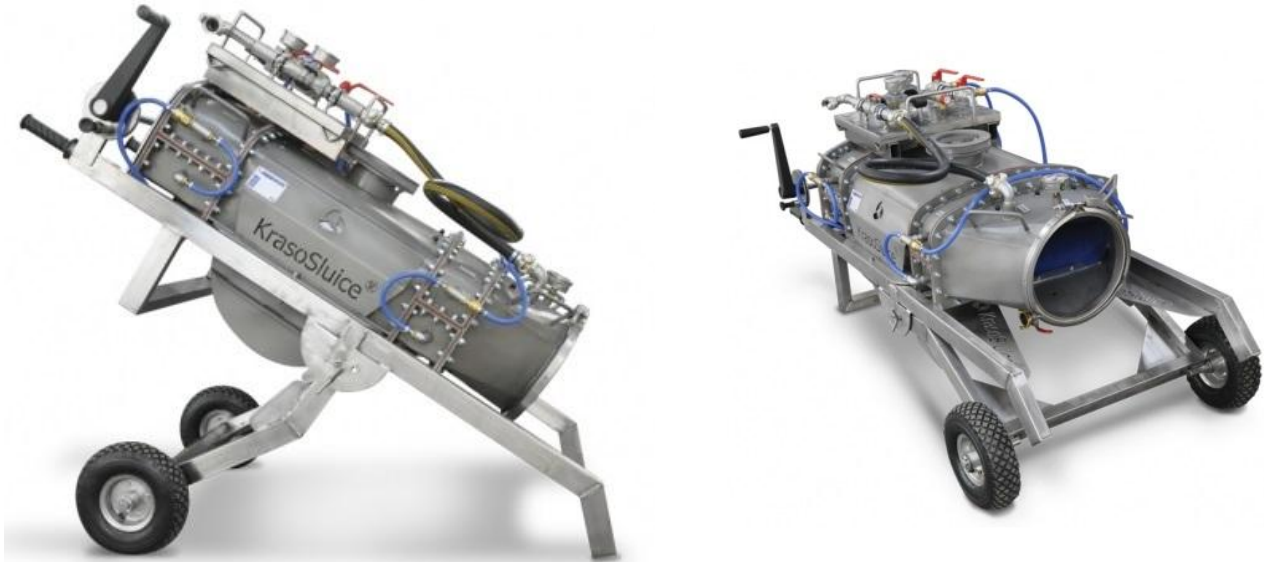
When used in conjunction with our range of silicate resins, and patching equipment, glass matting forms a perfect, long lasting, chemical and heat resistant point repair. The ECR glass is specifically formulated for use with poly silicate resins to ensure excellent compatibility and good usability for the contractor. Biaxial matting is also available for use in conjunction with our radius packers to achieve smooth repairs around 90° bends.

SLUICES

MATERIAL: Stainless Steel or Aluminum frame and pipework with rubber bladder internals

MANUFACTURER: Krasowski GmbH

PORT SIZES: ½ inch upwards



This unique patented design enables contractors to invert any length of liner with ease, speed and without the need for a scaffold. The twin chamber design allows liners to remain inflated whilst being inverted.

Units available for hot cure and steam cure.

Sluices 300

Capable of inverting:

Any length of liner.

100mm to 300mm diameter liners.

PVC or PU and any thickness.

Compact and lightweight.

Available in aluminum and stainless steel.

Sluices 600

It has powered roller beds at the rear to control the speed of inversion. This assists with the heavy weight of the liners, making this system very efficient and taking away some of the man power typically needed on site.

Capable of inverting:

Any length of liner.

100mm to 600mm diameter liners.

PVC or PU and any thickness.

INVERSION DRUMS



MATERIAL: Stainless Steel or Aluminium

MANUFACTURER: RSM Lining Supplies and Krasowski GmbH

We can manufacture any size drum to match your requirements.

Our stainless steel Medium and Maxi drums are manufactured for hot cure lining and are available powder coated on request, as shown above.

The baby drum is lightweight to enable one man lift , will fit through a household doorway and has an easy access glass lid. The Medium and Maxi drums are skid mounted for increased manoeuvrability on site.

Capabilities:

Baby – Up to 15m x 150mm inversion liner, 50m x 150mm calibration hose

Medium – Up to 30m x 225mm inversion liner

Large – Up to 80m x 300mm x 3mm inversion liner

POLYESTER RESIN



Available filled or unfilled to suit your needs for ambient or hot cure.

This tried and tested resin system is sourced from industry renowned manufacturers. Polyester Resin is by far the most common product used within the industry and is particularly versatile, the product is used in Ambient Cure, Hot Cure and UV Cure liners.

Polyester Resin has:

Excellent mechanical properties when properly cured

Flexible working times

When cured ambiently or hot cured with needle felt it provides a very cost effective CIPP solution.

Developments:

Whilst there are obvious benefits with Polyester Resins, we recognize that in their current form the styrene level has potential human and environmental impacts.

Therefore we are currently working to develop styrene free polyester systems as alternatives to our existing range and working with our liner manufacturer to develop a styrene barrier within needle felt liners.

PU SILICATE PATCHING RESIN

FEATURES: Simple 2 part resin mix.

Excellent product for household applications.

Available with varying cure times to suit ambient temperature.

Silicate resins are used in short length liners and point repairs. They provide an ideal alternative to Ambient Cure Polyester Resin for the short length liners especially in the domestic market.

The product has some excellent characteristics detailed :

The product, once cured has excellent mechanical properties

There is zero shrinkage

Excellent chemical and heat resistance of finished liner

Completely styrene free



EPOXY RESIN

CURE METHOD: Ambient, warm and hot cure systems.

FEATURES: Variable working times to suit application.

RSM's range of epoxy resins have been specially developed for the excellent mechanical properties, flexible working times and chemical resistance that they offer in conjunction with the processing ease for the contractor.

Long pot life systems available for factory impregnation.

RSM currently have the only WRc approved lining resin available in the UK, namely the EPO9100-1.



SUPERFLEX LINER



MATERIAL: Fleece needle felt with extra flexible polyurethane coating

SIZES: 75mm to 200mm diameter and available in 2mm and 4.5mm thicknesses

FEATURES: Extra flexible PU coating with a stitched and taped seam. Suitable for 90°C Bends.

Suitable for straight runs and bends up to 90°. Can be inverted by air and water.

Cure method: Ambient and warm cure.

Resins type: Ambient Polyester, Ambient Epoxy, PU Silicate and Warm Cure Epoxy.

PU DRAG-IN LINER



MATERIAL: Heavy duty polyurethane coated needle felt

SIZE: 70mm upwards

FEATURES: Flame bonded needle felt liner with taped seam and polyurethane coating.

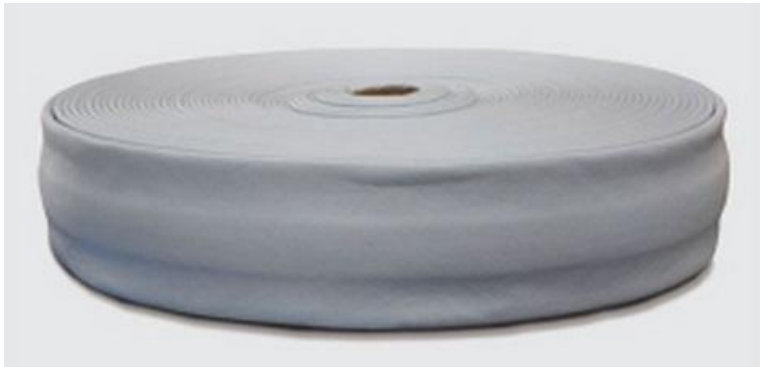
This liner is recommended for pipes in very bad condition as this product has a heavy duty coating. It can be pulled and rodded into place and is suitable for straight runs.

Cure method: Ambient and hot cure.

Resins type: Ambient Polyester, Ambient Epoxy, PU Silicate, Hot Cure Polyester, Hot Cure Vinylester and Hot Cure Epoxy.

Larger diameters and thicknesses available on request.

PVC DRAG-IN LINER



MATERIAL: Heat welded material with an impermeable, PVC coating, sized specifically for drag in applications

Sizes: Available in 70mm upwards, 3mm thickness and above

FEATURES: Flexible PVC coating, heat welded and taped seam

Suitable for straight runs and bends up to 45°. Can be pulled and rodded into place.

Cure method: Ambient and warm cure.

Resins: Ambient Polyester, Ambient Epoxy, Warm Cure Epoxy Resin and PU Silicate.

Larger diameters and thicknesses available on request.

CALIBRATION HOSE

MATERIAL: Nylon reinforced PVC film

Calibration hose is generally used to inflate drag in liners once they have been pulled into place. It also enables inversion liners to be installed from a single access point to a blind end.

Calibration hose is available in various guises to suit even the most demanding of applications from small diameter ambient liners, to hot cure longer length applications.

Seam types:

Superlight, blue: High frequency weld – Ambient Cure Only

Medium Duty, orange: Stitched and welded – Suitable for Hot Cure upto 80°C

Heavy Duty, navy: High frequency weld – Ambient and Warm Cure upto 50°C

Heavy Duty, white: Stitched and welded – Hot Cure up to 90°C



PRE LINER



MATERIAL: Welded or stitched and welded PVC film

TYPES: Standard and valeron

Size: 50mm diameter upwards. To compliment our range of liners and resins, we offer pre liners in various strengths.

To compliment our range of liners and resins, we offer pre liners in various strengths.

Pre liner is installed prior to the CIPP installation, and is used to prevent resin washout of the needlefelt tube. Pre liner also prevents egress of the resin through the host pipe and protects the liner during the ensuring good quality cured liner.

PACKERS

TYPE: Radius, lateral and wheeled flexible.

MATERIAL: Constructed of cord reinforced rubber with Kevlar reinforced ends for increased durability.

SIZES: Diameters from 25mm to 1200mm, lengths 600mm to 5000mm

Packers are utilised in conjunction with glass matting and silicate resins, in a point repair system to provide a permanent, leak tight and structural repair over displaced joints, and damaged sections of pipework.

Packers are specially engineered to provide as much flexibility as possible for easy insertion and with as larger diameter flow through as practically possible to ensure that in larger diameter pipes there is no requirement for additional overpumping.

Bespoke Packers – < 70mm diameter, > than 600mm diameter, oval shaped packers and packers longer than 2m can be made upon request with short lead time.



PATCH REPAIR KITS



The RSM PIPE AID local repair system is an ambient cure cured-in-place localised repair system which comprises of a two part silicate thermo setting resin and a glass fibre mat. The system is supplied with a summer (s) or winter (w) resin depending on the season.

The system is supplied in kit or bulk form.

It is applicable to renovation of straight sections of drains and sewers with nominal diameters of 100mm, 150mm or 225mm up to 5m deep. It is applicable to repairs of lengths of 500mm or 1000mm in kit form or up to 1200mm in bulk.

VETTER – PIPE STOPPERS AND TEST SEALING BAGS

BYPASS BAGS

optimum handling
with 3 sizes from 100 – 1,200 mm
very lightweight due to PE- core
exchangeable sleeve
With big opening for easy diversion.



If there is a requirement to reroute the sewage from defective piping by bypassing the defective location and letting the sewage flow back into the pipeline behind this location, then bypass bags are the suitable solution due to their largest possible through- flow opening. Only three bypass bags are required for pipe diameters from 100 mm to 1,200 mm (4 inch to 48 inch). The outside thread enables the connection coupling to be freely selectable.

Please note:

With the sizes PDK 10/20 and PDK 20/50 the bypass adapters are fitted on the PE core with screws. With bypass bags PDK 50/80 and PDK 50/120, the ducts (also with outside threads) are directly in the PE core. If required, a throughflow opening of up to 8" can be supplied for both sizes.

Standard test counter- pressure of 5 m WC (7.25 psi)

PIPE SEALING BAGS NBR

Resistant to e.g. propane, gasoline, heating oil

Temperature range: -15 ° C to 110° C

Individually tested (with inspection seal)

High- quality rubber material having high resistance

The oil- resistant alternative to the classics.

The Pipe Sealing Bags of nitrile rubber (NBR) are characterised by an increased resistance to chemicals (e.g. against oils, acids and fuels etc.) compared to conventional Pipe Sealing Bags of natural rubber (NR).

Ideal for use in:

Refineries

The chemical industry



PIPE SEALING BAGS CR

Good handling (length/ weight)
Very flexible applicable with integrated hose as an option
Good resistance to oil and chemicals
The oil- resistant alternative to the classics.



The Pipe Sealing Bags of chloroprene rubber (CR) are characterised by an increased resistance to chemicals (e.g. against mineral oils, heating oil etc.) compared to conventional Pipe Sealing Bags of natural rubber (NR).

Technical data

RDK 2.5 bar – Test counter- pressure 10 m WC (14.5 psi)

RDK 1.5 bar – Test counter- pressure 5 m WC (7.25 psi)

Owing to an increase in demand, all pipe and test sealing bags will be fitted with brass couplings as a standard from 01.01.2012 onwards. If you still wish to have the safety couplings (blue at 1.5 bar, black at 2.5 bar), we kindly ask you to state this explicitly when placing an order.

MINI TEST SEALING BAGS

Extremely short design
Extremely expandable
Up to 1 bar (14.5 psi) counterpressure
Optimised handling by valve connection
The small ones with duct.

Mini test sealing bags 2.5 bar can be used for testing, sealing and bypassing with repairs and maintenance work, e.g. sealing tests, channel inspection, maintenance, repair and cleaning.

Technical data

Standard test counter- pressure of 10 m WC (14.5 psi).

Owing to an increase in demand, all pipe and test sealing bags will be fitted with brass couplings as a standard from 01.01.2012 onwards. If you still wish to have the safety couplings (blue at 1.5 bar, black at 2.5 bar), we kindly ask you to state this explicitly when placing an order.

Accessories

Compressed air testing
Water pressure testing
Accessories – Inflation of the bags



TEST SEALING BAGS

lighter than test bags with inside core
only 3 sizes from 100 – 1,000 mm
flexible and sturdy design
for tests according to DIN EN 1610
The inspectors.

Vetter Test Sealing Bags fulfil three functions in one: seal, test with water or air and reroute / divert.
The flexible (internal hoses – no internal tube) and sturdy construction enable easy matching of the test bag to the different pipe materials. Small amounts of unevenness can also be compensated.

The areas of operation are, among others:

Rerouting drainage when leaking occurs
Banking up and dosed diversion of liquids
Sealing tests according to DIN EN 1610 with air or water
Control of the pipeline sections

The test bags are fitted with (an) inflation coupling(s) and tension lugs. The outside threaded connections of the inlets enable a free selection of accessories. The size of the connection depends on the type of bag.

PDK 2.5 bar – Test counter- pressure 10 m WC (14.5 psi)

PDK 1.5 bar – Test counter- pressure 5 m WC (7.25 psi)

PDK 0.5 bar – Test counter- pressure 2 m WC (2.9 psi)

With 1 RDK and 1 PDK with 2 openings the compressed air testing as well as the water pressure testing can be carried out. No second PDK is necessary!

Owing to an increase in demand, all pipe and test sealing bags will be fitted with brass couplings as a standard from 01.01.2012 onwards. If you still wish to have the safety couplings (blue at 1.5 bar, black at 2.5 bar), we kindly ask you to state this explicitly when placing an order.

Accessories

Compressed air testing
Water pressure testing
Accessories – Inflation of the bags



PIPE SEALING BAGS

wide product range
only 3 sizes from 100 – 1,000 mm
very flexible due to the material
easy handling, because lightweight and short
The classics.

Vetter Pipe Sealing bags are the optimum solution when quick and reliable sealing of drainage is required. A big advantage of the sealing bags are their freely selectable contact pressure (on the pipe wall): from 0.5 bar to 2.5 bar/7.25 psi to 36.25 psi. The areas of operation are, among others:

sealing off sewer pipelines during repair or maintenance work
avoiding sewage backflow at the source location during pipe bursts, flooding, sewer inspection, sewer cleaning, repair and maintenance work
Due to the numerous application possibilities, sealing bags are used in different branches of industry, such as road construction and civil engineering companies, sewer constructors, water authorities and industry.

Vetter Pipe Sealing bags can be used for the sealing test according to DIN EN 1610.

Technical data

RDK 2.5 bar – Test counter- pressure 10 m WC (14.5 psi)

RDK 1.5 bar – Test counter- pressure 5 m WC (7.25 psi)

RDK 0.5 bar – Test counter- pressure 2 m WC (2.9 psi)

Owing to an increase in demand, all pipe and test sealing bags will be fitted with brass couplings as a standard from 01.01.2012 onwards. If you still wish to have the safety couplings (blue at 1.5 bar, black at 2.5 bar), we kindly ask you to state this explicitly when placing an order.



HP PIPE SEALING BAGS

- multi- layer and stable bag design
- up to 3 bar (43.5 psi) counterpressure
- high operating pressure of 6 bar (87 psi)
- extreme expansion despite high pressure
- Withstand even high pipe internal pressures.



The 6.0 bar (87 psi) High Pressure Sealing Bags round off the product range for the pipe sealing bags and the test sealing bags belonging to the 1.5 bar and 2.5 bar (21.75 and 36.25 psi) series which have been successful for many years.

These bags, which can withstand a maximum counter- pressure of 30 m (96 ft.) water column and used everywhere where there is a high pipe internal pressure (e.g. in the area of sanitation or for the inspection of pipelines).

The multi- layer bag design with textile ply enables the application of a high operating over- pressure of 6.0 bar (87 psi) on the one hand and on the other hand helps to avoid longitudinal expansion due to its structure.

Technical data

Standard test counter- pressure of 30 m WC (43.5 psi).

Owing to an increase in demand, all pipe and test sealing bags will be fitted with brass couplings as a standard from 01.01.2012 onwards. If you still wish to have the safety couplings (blue at 1.5 bar, black at 2.5 bar), we kindly ask you to state this explicitly when placing an order.

TEST SYSTEM FOR DOMESTIC PIPE NETWORK

- For water pressure & compressed air testing
- Ideal bending characteristics
- Rounded tips
- Spherical head for easy bag return
- For sealing tests according to DIN EN 1610.



Blocking as well as the test procedure are carried out exclusively from the inspection shaft. Using an inflation hose and a feed hose, the sealing bag is pushed in until it reaches the mouth of the main sewage channel. The test sealing bag is positioned so that it is just in front of the inspection shaft.

The special short design of the pipe sealing bag as well as the rounded “tip” increase the bending characteristics. In addition to this, the other end of the sealing bag is fitted with a spherical head which enables an effortless return of the bag via a sleeve offset.

Standard test counter- pressure of 5 m WC (7.25 psi).

* Can be supplied with 6” or 8” duct if required.

Accessories:

- Compressed air testing
- Water pressure testing

EGG PROFILE TEST AND BYPASS BAG

- Foldable bag
- Up to 0.5 bar (7.25 psi) counter pressure
- Very lightweight and practical
- Extremely flexible
- For the reliable testing of egg profiles.

The egg profiles are not only used as sealing bags but also as test bags and bypass bags. In addition to the inflation connection, the bags are equipped with either one or two C- connectors (2").

Additionally, the sealing function is, among other things, suitable for:

- damming or banking
- producing a pump well
- for sealing inspection of newly laid pipelines or reconstructed sewer pipelines according to EN 1610
- for rerouting sewerage when there are leaky pipelines
- Owing to their flexibility, the egg profile bag can be positioned through the shaft in the sewerage pipeline.

As opposed to the 1.0 bar (14.5 psi) version, the 1.5 bar (21.75 psi) egg profiled test sealing bag covers two pipe dimensions. The compact design and userfriendly application are just two of its features. Test sealing bags can also be used as bypass bags.

Another advantage is the work saving characteristic due to the fact that assembly in the shaft is not necessary as opposed to other customary blocking devices. The smooth surface ensures constant quality in the field of sewer reconstruction.

Technical data:

Standard test counter- pressure of 5 m WC (7.25 psi).



EGG PROFILE SEALING BAG

- foldable bag
- up to 0.5 bar (7.25 psi) counterpressure
- very lightweight and practical
- extremely flexible
- The specialists for egg profiles.

The sealing bags for egg profiled pipelines offer the opportunity to also seal sewer pipelines which are egg-shaped as well as the more frequent round shape. Reliable sealing of this Type of pipeline is not possible with round bags due to the fact that at the lower end (sole) has a smaller radius and therefore does not seal one hundred percent .

The egg- profile sealing bag is made of a sturdy rubber material which is seamless and has high expansion characteristics.

A feature of the 1.5 bar (21.75 psi) egg- profiled sealing bag is its compact design and therefore has a decisive advantage over the 1.0 bar (14.5 psi) version. This lies in the fact that due to the material expansion of the bag coating, two pipe cross sections can be covered with one egg profiled sealing bag. The smooth surface ensures constant quality in the field of sewer reconstruction. These sealing bags are also made as test bags and bypass bags with internal hose.

Technical data:

Standard test counter- pressure of 5 m WC (7.25 psi).

Further sizes and length can be produced on request



ACCESSORIES

TOILET AUGERS



High quality tools in 3' (1 m) and 6' (2 m) and lengths provide fast and safe clearing of toilet obstructions. Features include:

- Vinyl guard to protect porcelain.
- New durable, kink-resistant, 1/2" (12,7 mm) compression-wrapped Inner Core Cable.
- Large, ergonomically designed handles.
- Negotiate water-conserving toilets

GRAPPLER HOOK



Model K-5 Grappler Hook

- Retrieves rocks, tools, objects.
- Extends your reach 6' (2 m) for even the deepest traps.

SEWER TAPE



One-Piece Flat Sewer Tape

- Sizes and lengths for use on sewer and drain lines through 8" (200 mm) in diameter and up to 100' (30,4 m) in length.
- Carrier included with all except 25' (7,6 m) model.
- All models have a hand grip and a spear point at one end and roller ball at the other

SUCTION HOSE & LAY FLAT HOSE

Conveyance and Discharge of Water etc. Suitable For Irrigation, Water Supply, General Industries, Civil and Construction Engineering.



CLEARING WHEEL



Clearing Wheel is connected directly to a sewer rod. It guides the rod around difficult bends and removes minor blockages by pushing the material clear. This easy to use clearing wheel comes with a durable brass threaded ferrule for connecting to drain rods.

BAUER FITTINGS

A complete system quickly installed, even in the dark. No tools – no loose parts. Flexibility With up to 30° articulation on coupling joint. Suction and pressure-proof, providing excellent flexibility of installation, ideal for difficult site conditions. Strong and durable Produced from high-grade high-tensile steel, abrasion resistant hot-dip galvanisation according to DIN EN ISO 1461 – also stainless steel option. Safe Suction and pressure-proof up to 20 bar with all types of media, subject to suitable seal material options. Heat resistance Resists up to 110 °C with special seals. Tensile resistance Suction and pressure-proof while subject to tensile stress. Versatile Suitable for handling all types of products: hot dip galvanised or stainless steel product range. Special coatings on application. Security With special locking pin system – HKS design.



TIGER TAILS

Prevents wear on the jetting hose.
 Position at any sharp bend where the jetting hose is in contact with and tie off with the rope supplied. Feed the jetting hose and nozzle through the centre and the smooth internal core will reduce the chance of the hose becoming damaged through exposed reinforcing wires.
 Also extends the life of your jetting hose considerably.



DRAIN DYE

DRAIN TESTING DYE'S – 200G JARS

The dyes are soluble in water and are used to locate the direction of water flow in pipes, drains etc. The best way to use the dye is to dissolve the required amount into about five litres of water and then add into the flow or tank. The dilution rates assume that the dye is being added to clean water, dirty water will require a greater concentration.

Colours Available:

- Fluoresceine
- Green
- Red
- Blue
- Purple
- Yellow
- Orange



SEWER RODS



Blue Rods®, Polypropylene – These Rods are generally acknowledged as the best quality cleaning rods available which are specified on a world wide basis and are the preferred choice of professionals.

Blue Rods® have earned an international reputation for their reliability, strength, rigidity and the right amount of flexibility. They have been developed through many years of constant research and development, the rods are manufactured from the highest grade of polypropylene whilst the joints are manufactured from solid brass. To ensure strength and durability during use the brass joints are securely fitted to the rods by brass rivets.

DROP SCRAPER



scraper connects directly onto standard sewer rods to be inserted into the sewer pipe. This easy to use scraper is designed to glide over small obstructions and drop into a vertical scraping position to allow offending material be dragged back towards the operator.

MICRO HOSE KIT



Supplied with a 1/2" BSP male adaptor for connection to the main jetting hose as standard, although other thread types are available upon request.

Length : 7m – 10m 15m available

Maximum working pressure : 300 bar

Please Note: Hose may be supplied black or brown in colour

DOUBLE WORM SCREW

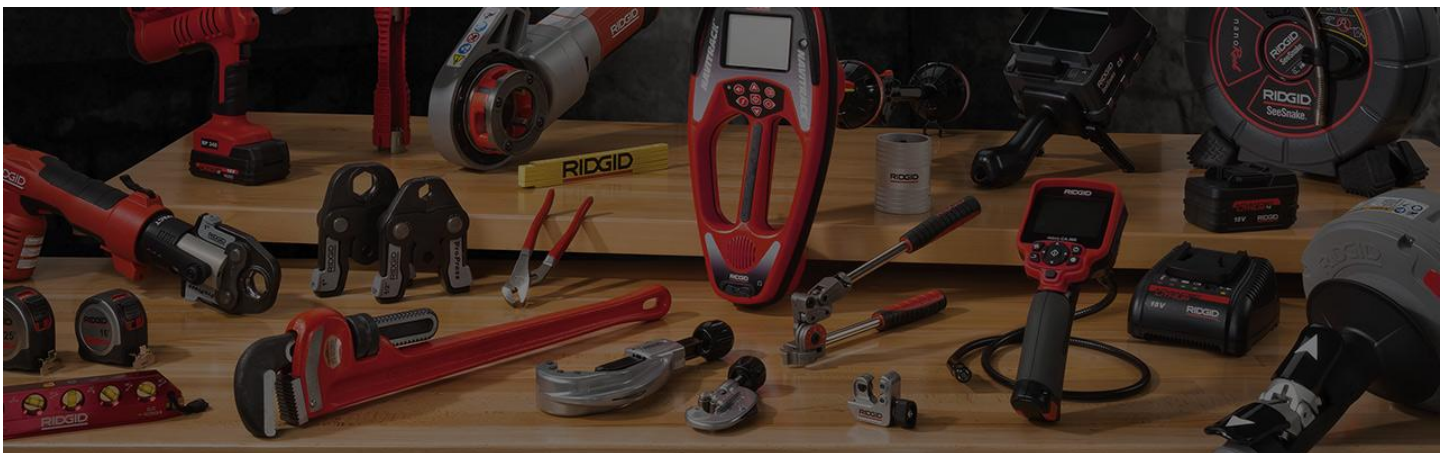


Attach to your Drain Rod to pierce blockages such as paper or rags, and the obstruction is drawn back to clear the pipe

RIDGID DIAGNOSTICS, INSPECTION & LOCATING

Some invent to change the world, at RIDGID they invent for those who build it. In 1923 Ridgid invented the modern pipe wrench and since then everything that carries the RIDGID name has been designed and crafted for strength, effectiveness and legacy.

Based in Ohio, USA Ridgid tools are targeted at the plumbing, pipe fitting, construction, and HVAC trades. The brand is best known for its distinctive red pipe wrenches, but the company manufactures over 300 different types of tools. The company also sells power tools, largely made by TTI, and wet/dry vacs, made by parent company Emerson.



RIDGID DIAGNOSTIC

MICRO IR-100 NON-CONTACT INFRARED THERMOMETER

The RIDGID® micro IR-100 Non-Contact Infrared Thermometer provides simple, quick and accurate surface temperature readings at the push of a button. You simply squeeze the trigger and point the ultra-sharp dual Class II lasers at the surface being measured. The micro IR-100 provides an immediate temperature measurement on a clear, easy-to-read backlit LCD display. In addition to numerous other uses, this rugged and compact instrument enables professional tradesman to diagnose heating and ventilation problems, perform preventative monitoring of electrical motors and systems, troubleshoot steam traps and quickly check fuses or circuit breakers for overheating – all without contact.

- Ultra Sharp Dual Class II Lasers easily illuminate the surface area being measured.
- Ergonomic Pistol Style Grip with rugged over molding allows you to keep a solid grip in the harshest of industrial environments.
- 20:1 Distance To Spot Ratio allows you to take more accurate measurements from long distances.
- Visual and audible alarms quickly alert you to temperatures outside of the ranges that you set.
- Bright Backlit Display which can be toggled on in poorly lit areas.
- Tripod Mount Capable for repeatable, precise temperature measurements.

Specifications

- Temperature Range.....-59° to 1472°F (-50° to 800°C).
- Measurement Accuracy.....-58°F ~68°F (-50°C ~20°C);
±4.5°F (2.5°C);
68°F ~1472°F (20°C ~800°C);
±1.0% or ±1.8°F (1.0°C).
- Response Time.....<150 ms.
- Temperature Display.....Current temperature, max temperature.
- Measurement Units.....Fahrenheit, Celsius.
- Power Source.....Battery (1 x 9V).



MICRO CD-100 COMBUSTIBLE GAS DETECTOR

The RIDGID® micro CD-100 Combustible Gas Detector provides simple and quick readings to identify the presence of combustible gases. It is designed to detect Methane, Propane, Butane, Ethanol, Ammonia, Hydrogen and many other combustible gases. With adjustable sensitivity, even low-levels of gases can be detected in seconds.

The RIDGID micro CD-100 Gas Detector ensures proper gas line installations, checks for maintenance and repair needs, and quickly pinpoints combustible gas leaks.

- Rugged Ergonomic Design makes it comfortable to use, yet tough.
- Tri-Mode Detection™ gives the operator the flexibility to be alerted with a visual, audible or vibration alert which can be adjusted for your environment.
- Adjustable Sensitivity Settings provide precise leak locating with the touch of a button.
- 16" (40 cm) Flexible Probe allows location and detection of leak in hard-to-reach and confined spaces.
- Field Replaceable Sensor means more up-time and less time waiting for repairs.

Specifications

- Detection Range.....0 to 6400 ppm (Methane).
- Alarm Sensitivity.....40 ppm (Methane).
- Calibration.....Automatic.
- Alarms.....Visual, Audible, Vibration.
- Power Source.....Batteries (4 x AA).



MICRO LM-100 LASER DISTANCE METER

The RIDGID® micro LM-100 Laser Distance Meter provides simple, quick and accurate distance readings at the push of a button. Simply push the measurement button to turn on the ultra-sharp Class II lasers, point the device at the spot to be measured, and push the measurement button. The distance reading will appear on the easy-to-read LCD display. This rugged, compact, portable instrument enables professional tradesman to quickly determine run distances for bidding, distance of piping run, measuring trouble spots down the line, and quickly determine spacing for code compliance.

- Ultra Sharp Class II Lasers clearly highlight the point being measured.
- Exceptional Distance Range allows accurate measurements up to 164 feet (50 m).
- Adjustable Units enable you to quickly read in feet, inches or meters on the fly.
- Bright Backlit Display for use in poorly lit areas.
- Quick and Accurate calculations on the spot.
- Displays up to the last three measurements, stores the last 20 measurements.
- Rugged Over Molding allows you to keep a solid grip in the harshest of industrial environments.

Specifications

- Measurement Accuracy..... $\pm 1/16$ inch, (1,5 mm).
- Range.....164 feet (50 m).
- Measurement Units.....Inches, feet, meters.
- Measurement Calculations.....Area, Volume, and Indirect measurement calculations.
- Power Source.....Batteries (2 x AAA).
- IP Rating.....IP 54.



RIDGID LOCATORS

SEEKTECH® UTILITY LINE LOCATORS

Performance

The mapping display confirms a good locate signal and identifies distortion in congested areas using:

- Target-Line – Guides the operator down the line and shows changes in direction.
- Left-Right Guidance Arrows – Points the operator to the target utility.
- Proximity Signal and Signal Strength – Helps the operator center the locator closer to the target for more confident locates.

Other Features

- Continual Depth – Increases productivity by showing depth changes in real-time.
- Omni-Seek® – Increases accuracy and efficiency when searching in passive mode. Continuously searches passive power and radio bands to locate and avoid unknown metallic lines.
- User-Defined frequencies – RIDGID SeekTech receivers can be configured with up to 30 user-defined frequencies.
- SeekTech SR-60 locator can be set to any frequency between 10 Hz and 93.000 Hz making it a universal receiver.
- SeekTech SR-20 locator can be set to any frequency between 10 Hz and 35.000 Hz.



SEEKTECH® SR-20 LOCATOR

For a lightweight yet rugged receiver that provides all the information needed for faster, more accurate locates.

Easy to Use

- Target line and guidance arrows quickly identify distortion.
- Proximity signal and signal strength help work through difficult locates.
- Can trace any frequency from 10 Hz to 35.000 Hz.

SR-20 Locator Specifications

Active Line Trace Frequencies*	128 Hz, 1 kHz, 8 kHz, 33 kHz.
Passive Power Trace	50 Hz, 60 Hz, <4 kHz Broadband.
Passive Radio Trace	4 kHz – 15 kHz, 15 kHz – 36 kHz.
Sonde Frequencies	16 Hz, 512 Hz, 640 Hz, 850 Hz, 8 kHz, 16 kHz, 33 kHz.
Power Source	4 C-Cell Batteries.
Battery Life	Approximately 16 Hours.
Weight	3.5 lbs. (1,6 kg).

Meets FCC Class A and EN 55022 Class A requirements.

* 30 user definable frequencies can be set from 10 Hz to 35.000 Hz.



Standard Equipment

- Hard plastic carrying case.
- Surface markers and clip.
- Instructional DVD.
- Operator's manual.
- 4 C-Cell Batteries (alkaline).

SEEKTECH® SR-60 LOCATOR

For the fastest, easiest, most versatile receiver available.

Versatility

- Can trace any frequency from 10 Hz to 93.000 Hz.
- Can trace energized lines and sondes (active beacons) simultaneously.
- Has all the ease of use and accuracy of the SR-20 locator but with ALL locatable frequencies.

Choose the SR-60 locator for fast confident locates even under tough locate conditions (poor conductors, poor soil conditions, poor grounding, etc.).

SR-60 Locator Specifications

Active Line Trace Frequencies**128 Hz, 1 kHz, 8 kHz, 33 kHz, 51 kHz, 93 kHz.

Passive Power Trace.....50 Hz, 60 Hz, <4 kHz Broadband.

Passive Radio Trace.....4 kHz – 15 kHz, 15 kHz – 36 kHz.

Sonde Frequencies**16 Hz, 512 Hz, 640 Hz, 850 Hz, 8 kHz, 16 kHz, 33 kHz.

Power Source.....4 C-Cell Batteries.

Battery Life.....Approximately 16 Hours.

Weight.....5.1 lbs. (2,3 kg).

Meets FCC Class A and EN 55022 Class A requirements.

** 30 user definable frequencies can be set from 10 Hz to 93.000 Hz.

Standard Equipment

- Hard plastic carrying case.
- Surface markers and clip.
- Instructional DVD.
- Operator's manual.
- 4 C-Cell Batteries (alkaline).



NAVITRACK SCOUT® LOCATOR

The NaviTrack Scout locator is designed to solve the most demanding remote transmitter (sonde) locates using multi-directional locating technology.

Easier Locates

The NaviTrack Scout multi-directional antenna technology sees the entire signal all of the time. Simply maximize the signal strength and you have found the target. No nulls or false peaks to complicate the locate.

Accuracy

This locator verifies the locate position using a micro-mapping display to mark distinctive poles in front of and behind the target, insuring an accurate locate.

Automatic Depth

Depth is automatically calculated and displayed when over the target.

Specifications

- Weight.....3 lbs. (1,4 kg).
- Power Source.....4 C-Cell batteries.
- Battery Life.....Approximately 24 hours.

Standard Frequencies

- Sonde.....16 Hz, 512 Hz, 640 Hz and 33 kHz.
- Line Trace.....512 Hz, 8 kHz and 33 kHz.
- Passive AC Line Trace.....60 Hz, 50 Hz.

Standard Equipment

- Hard Plastic Carrying Case.
- Surface Markers and Clip.
- Instructional DVD.
- Operator's Manual.
- 4 C-Cell Batteries.

The NaviTrack Scout is ideal for users locating SeeSnake cameras and other sondes who occasionally need to locate energized lines.



RIDGID TRANSMITTERS

SEEKTECH® ST-510 LINE TRANSMITTER

- Ten Watts of fully variable power output.
- LCD display provides instant visual feedback on line resistance and current flow.
- Two 25' (7,62 m) lead wires with heavy duty clips.
- Compatible with competitor's equipment.
- Audio feedback confirms a good circuit before beginning a trace.

Frequencies:

- Direct Connect: 128 Hz, 1 kHz, 8 kHz, 33 kHz and 93 kHz.
- Induction: 1 kHz, 8 kHz, 33 kHz, 93 kHz.
- Competitor Frequencies: available in both direct connect and induction.



SEEKTECH ST-33Q LINE TRANSMITTER

- The ideal transmitter for inducing current onto a target line.
- Increase efficiency and trace further by inducing over eight times more current onto a target line.
- The most versatile transmitter available with any direct connect frequency between 10 Hz and 93 kHz.
- Audio feedback confirms a good circuit before beginning a trace.

Frequencies:

- Direct Connect (factory set): 128 Hz, 1 kHz, 8 kHz, 33 kHz, 93 kHz.
- Direct Connect (user defined): 10 Hz – 93 kHz.
- Induction: 8 kHz, 33 kHz.



SEEKTECH ST-305 LINE TRANSMITTER

- Lightweight and compact transmitter that delivers up to 5 Watts of power.
- Can transmit two frequencies simultaneously.
- Audio feedback confirms a good circuit before beginning a trace.

Frequencies:

- Direct Connect: 1 kHz, 8 kHz, 33 kHz, 93 kHz.
- Induction: 1 kHz, 8 kHz, 33 kHz, 93 kHz.



SEEKTECH INDUCTIVE SIGNAL CLAMP

- Allows users to apply a signal to a cable or pipe when direct connection is not possible.
- Compatible with all RIDGID® transmitters.



REMOTE TRANSMITTER

- Can be attached to a drain cleaning cable or a water jet hose to locate the Remote Transmitter in a line.
- Flashing LED indicates that sonde is transmitting.
- Meets FCC Class B and EN 55022 Class B requirements



FLOATING TRANSMITTER

- Ideal for locating septic tanks.
- 512 Hz signal.
- Flashing LED indicates that sonde is transmitting.
- Flushable.
- Battery-powered.
- Meets FCC Class B and EN 55022 Class B requirements



SEESNAKE FLEXMITTER® TRANSMITTER

- With a SeeSnake Flexmitter 512 Hz you can locate a camera in a line (now standard with all SeeSnake reels: Mini-SeeSnake, SeeSnake Standard and SeeSnake Self-Leveling).
- If your SeeSnake camera isn't equipped with a transmitter, you can upgrade your camera with a Flexmitter transmitter.
- Meets FCC Class A and EN 55022 Class B requirements.



RIDGID CAMERA SYSTEMS

RIDGID® SEESNAKE® VIDEO INSPECTION SYSTEMS

1½" to 8" (40 – 200 mm) Lines up to 200' (61 m)

2" to 12" (50 – 300 mm) Lines up to 325' (99 m)

RIDGID SeeSnake video inspection systems offer unmatched reliability and performance in a ruggedized package. Each system offers:

- 100% hardened stainless steel camera head spring assembly for optimum durability.
- Rugged, high-intensity lights for exceptional viewing and long life.
- Flexible transmitters make locating easy and are compatible with RIDGID locators.
- Can be used with any SeeSnake monitor or recorder.

Three Choices to Meet Your Needs

Mini-SeeSnake

- 1½" to 8" (40 – 200 mm) Lines up to 200' (61 m).
- Ideal for where portability and maneuverability are crucial: multi-story buildings, rooftops, confined areas, etc.
- Also available with a 35 mm Self-Leveling camera head.

SeeSnake

- 2" to 12" (50 – 300 mm) Lines up to 325' (99 m).
- Wide pipe diameter capacity range makes this system ideal for a wide range of inspection needs.

SeeSnake Self-Leveling Camera

- Same features and specifications as the SeeSnake.
- Includes an always upright, self-leveling camera design.
- Also available in combination with a Mini-SeeSnake reel.



SEESNAKE® DIGITAL LAPTOP INTERFACE

The SeeSnake LT1000 Laptop Interface allows you to leverage the power and flexibility of a laptop computer with your SeeSnake Mini or Standard drain inspection cameras and reels. It lets you use a laptop computer as a camera control unit to add powerful monitoring, recording, storage and communications capabilities.

Ultimate Flexibility in recording, monitoring, and reporting. Unlock the power of your laptop to monitor, record, and communicate.

Clean Keys Control Pad allows you to keep gloved hands off the laptop keyboard while controlling camera operation and recording during an inspection.

Battery Powered Freedom lets you perform inspections regardless of availability of AC power.

Laptop Stabilization System allows you to secure and stabilize your laptop and reel to protect it in the field (full LT1000 only).

Specifications

Power..... 18 V LI Battery or AC Plug.

Outputs..... USB Video Stream, RCA Video and Audio.

Controls..... Sonde, Lights, Recording, Image Rotation, etc.

LT1000

The full LT1000 System mounts directly onto your SeeSnake Mini or Standard reel giving you a stacked and stable platform with a single cord interface.

Compatibility..... All SeeSnake Mini and Standard Reels.

Includes..... SeeSnake HQ™ Monitoring/Recording Software, Reel Mounting Kit, 6' (1,8 m) USB Cable, 4 Reel Outriggers (for stability), AC Power Cable.

LT1000M

The LT1000M is a detached interface that allows you to interface with any SeeSnake reel.

Compatibility..... All SeeSnake Reels.

Includes..... SeeSnake HQ Monitoring/Recording Software, 3' (90 cm) USB Cable, Micro Frame, AC Power Cable.



CS1000 DIGITAL RECORDING MONITOR

The CS1000 camera control unit is a purpose-built monitor that allows you to digitally record and report on your inspections in the field. With the CS1000, you have the flexibility you need to take full advantage of digital recording technology.

Features

Read Writer gives you the ability to generate and deliver a full report on-site with integrated inspection footage and descriptions.

12.1" Daylight Readable Display allows you to easily monitor inspections in bright outdoor environments.

Integrated Line Tracing allows tracing the reel push cable with a RIDGID® locator (requires a RIDGID transmitter).

Three Modes of Recording let you take digital stills, full frame video and a compressed video format called Auto-log (for smaller video files).

Integrated Keyboard for taking notes and storing information about the inspection and customer.

The keyboard is available in QWERTY or AZERTY format.

SeeSnake HQ™ Software (included) allows you to deliver your reports in a wide variety of ways from online video to DVD.

- Report on and deliver inspection results with this powerful software package.
- Simply import your inspections from your CS1000 into SeeSnake HQ via USB stick.
- Edit video and images.
- Burn digital images to DVD.
- Develop detailed job reports.
- Publish, edit and share your reports.

Specifications

Weight.....	14.75 lbs. (6,7 kg).
Length	14.3" (36,3 cm).
Width.....	11.9" (30,2 cm).
Height	12.4" (31,5 cm).
Display	12.1" Daylight Readable LCD.
Resolution.....	640 x 480.
Power Source	1 or 2 RIDGID 18 V Batteries or AC Plug.
Audio.....	Integrated Microphone and Speakers.
Video.....	AVI 20FPS – 720 x 480.
Image.....	JPG – 720 x 480.
Transfer.....	USB stick.



CS10 DIGITAL RECORDING MONITOR

The CS10 Monitor combines RIDGID® durability with the easiest to use digital recording monitor in the industry. One touch recording allows you to record snapshots and video directly to a USB stick then hand it directly to your customer.

- USB Stick recording lets you record digitally into a format that your customer can read on their computer.
- 12.1" Daylight Readable Display allows you to easily monitor and record inspections in bright outdoor environments.
- Integrated Line Tracing Allows tracing the reel push cable with a RIDGID locator (requires a RIDGID transmitter).
- Multi Mode Recording lets you take snapshots, record full frame video, and record in a lean video format called Auto-log (small files).
- Software Integrations with SeeSnake HQ™ allow you to deliver your inspections in a wide array of formats from online to DVD.

Specifications

Weight.....13 lbs. (5,9 kg).
Length.....14.3" (36,3 cm).
Width.....11.9" (30,2 cm).
Height.....12.4" (31,5 cm).
Display.....12.1" Daylight Readable LCD.
Resolution.....640 x 480.
Power Source.....1 or 2 RIDGID 18 V Batteries or AC Plug.
Audio.....Integrated Microphone and Speaker.
Video.....AVI 20FPS – 720 x 480.
Image.....JPG – 720 x 480.
Transfer.....USB stick.
Software.....Includes SeeSnake HQ Software.



MINPAK MONITOR

Features

- Lithium-Ion Battery Power – Enables 5-hours continuous operation before recharging.
- Push Button Interface – Provides easy operation of LED lights, transmitter, screen settings and system on/off functions.
- Integrated Line Tracing – Allows tracing the reel push cable with a RIDGID® locator (requires a RIDGID transmitter).

Specifications

Display.....	5.7" Colour LCD.
Resolution.....	320 x 240.
Power Source.....	RIDGID 18 V Li-Ion Battery or AC Plug.
Length.....	14" (35,6 cm).
Width.....	7.6" (19,3 cm).
Height.....	10" (25,4 cm).
Output.....	Composite Video Out.
Lighting.....	10 Level Adjustable LED Control.
Recording.....	Optional recording accessories available.



SEESNAKE HQ™ DIGITAL INSPECTION SOFTWARE

SeeSnake HQ is powerful installed software for monitoring, recording and managing digital inspection data in the field. Record and document your findings, burn DVDs and export to a USB stick.

Monitor and Record

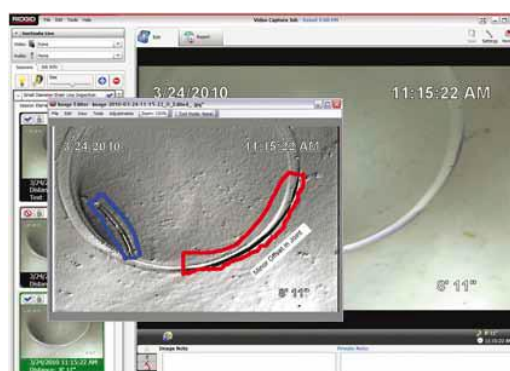
- Use your laptop as a large screen monitoring display.
- Record videos and image directly to your hard drive.
- Record your observations and control your inspection camera using the power of a laptop.

Report

- Document your observations and create a report of your findings.
- Store details about the job including contact information, observations, recommendations and notes.
- Customize the appearance of your reports to fit your company.

Delivery

- Burn DVDs for your customers or hand them a USB stick.



SEESNAKE® NANOREEL INDUSTRIAL INSPECTION CAMERA SYSTEM

¾" to 2" (20 to 50 mm) Capacity up to 85' (25 m)

Passes 90° bends in most 30 mm lines

The SeeSnake nanoReel opens up new possibilities in long run small diameter inspection needs. Applications where only bore scopes could reach can now be inspected using the nanoReel. Boiler tubes, supply lines, sprinkler systems, and a wide array of specialty applications can all be inspected using the new nanoReel.

- Small diameter and tight turn radius camera allows lines up to 85' (25 m) to be inspected with tight turns in 1" (25 mm) lines. Can pass 90° bends from 30 mm onwards in many piping systems.
- Lightweight and compact unit allows for easy transport and efficient storage.
- Interchangeable drums let you change out the inner drum depending on the application.

Choose
from:

- L100/L100C – 1½" to 5" (40 – 125 mm) lines with a stiffer push cable allowing you to inspect lines up to 100' (30 m).
- D30 and D65S – Small diameter with tight turns, 1½" to 4" (40 – 100 mm) P-Traps, toilet traps, pool lines up to 65' (20 m).
- N85S – Ultra small diameter lines ¾" to 2" (20 – 50 mm) with tight turns for specialized applications.

Specifications

Camera Head.....	0.62" (15,5 mm).
Cable Length.....	85' (25 m).
Cable Diameter.....	0.25" (6,3 mm).
Line Capacity.....	¾ to 2" (20 – 50 mm).
Weight.....	9.5 lbs. (4,1 kg).
Length.....	13.25" (33,7 cm).
Width.....	6.6" (16,8 cm).
Height.....	17.5" (44,5 cm).
Resolution.....	510 x 496.
Ball Guide.....	2 Included.
Sonde.....	512 Hz.
Counter.....	NA.



SEESNAKE® MICROREEL™ VIDEO INSPECTION SYSTEM

1½" to 4 / 5" (40 – 100 / 125 mm)* lines up to 100' (30 m)

Passes 90° bends in most 50 mm lines

* 4" (100 mm) when used with a microEXPLORER or micro CA-300. 5" (125 mm) when used with a SeeSnake monitor.

SeeSnake microReel video inspection system provides small size and maneuverability for small diameter and tight-turn radius inspections.

- Lightweight and compact design is one-half the size of popular inspection systems, easily stowed in a truck and carried onto the jobsite.
- Multi-monitor compatibility with existing SeeSnake monitors, or the CA-300 digital inspection camera.
- Durable and reliable construction with hardened stainless steel camera head spring assembly for a long service life as well as long lasting high-intensity lights for exceptional viewing.

SeeSnake microReel
L100 & L100C Systems

Features

Stiffer push cable than microDrain to enable line inspections up to 100' (30 m).

Specifications

Camera Head.....0.98" (25 mm).
Cable Length.....100' (30 m).
Cable Diameter.....0.27" (6,7 mm).
Line Capacity.....1½" to 4 / 5" (40 – 100 / 125 mm).
Weight.....10.3 lbs. (4,7 kg).
Length.....13.25" (33,7 cm).
Width.....6.6" (16,8 cm).
Height.....14.2" (36,1 cm).
Resolution.....510 x 496.
Ball Guide.....2 Included.
Sonde.....512 Hz.
Counter.....Optional.



SEESNAKE® MICRODRAIN™ VIDEO INSPECTION SYSTEM

1¼" to 3 / 4" (32 – 75 / 100 mm)* lines up to 65' (20 m)

Passes multiple 90° bends in most 40 mm drain lines

* 3" (75 mm) when used with a microEXPLORER or micro CA-300. 4" (100 mm) when used with a SeeSnake monitor.

SeeSnake microDrain video inspection system provides small size and manoeuvrability for small diameter and tight-turn radius inspections.

- Lightweight and compact design is one-half the size of popular inspection systems, easily stowed in a truck and carried onto the jobsite.
- Multi-monitor compatibility with existing SeeSnake monitors, or the micro CA-300 digital inspection camera.
- Durable and reliable construction with hardened stainless steel camera head spring assembly for a long service life as well as long lasting high-intensity lights for exceptional viewing.

SeeSnake microDrain D30 & D65S System

Features

Ideal for inspections with tight turns such as toilet traps and P-traps.

Specifications

Camera Head.....	0.86" (22 mm).
Cable Length.....	30' (10 m), 65' (20 m).
Cable Diameter.....	0.33" (8,3 mm).
Line Capacity.....	1¼" to 3 / 4" (32 – 75/100 mm).
Weight.....	8.6 lbs. (3,9 kg), 9.8 lbs. (4,4 kg).
Length.....	13.25" (33,7 cm).
Width.....	6.6" (16,8 cm).
Height.....	14.2" (36,1 cm).
Resolution.....	628 x 586.
Ball Guide.....	2 Included.
Sonde.....	Standard with 20 m microDrain, 512 Hz.



SEESNAKE® COMPACT VIDEO INSPECTION SYSTEM

1½" to 6" (40 – 150 mm) Lines up to 100' (30 m)

Passes 90° bends in most 50 mm lines. The SeeSnake Compact system offers fast setup for quick inspections. Its ultra portability makes this system an excellent choice.

Standard Equipment

Power Source:

- Battery port for use with optional 18 V battery.
- AC/DC operation.

MINIPak Monitor System:

- High-resolution monitor.
- Push button controls for sonde, power, lights, flipscreen and zeroing the counter.
- Splash-resistant case with built in sunshade.
- Video Out jack.
- Integrated Line Tracing – Allows tracing the reel push cable with a RIDGID® locator (requires a RIDGID transmitter).

Camera System:

- Scratch-resistant, debris-shedding, flush-mounted sapphire lens.
- Integrated transmitter.
- Durable stainless steel camera head assembly and tapered spring assembly.

Reel:

- 100' (30 m) of push cable.
- Debris-capturing, rotating drum with mercury-free slip ring.
- Counter to display distance on monitor in feet and inches (decimetres and centimetres).



RIDGID HAND HELD CAMERAS

MICRO CA-100 INSPECTION CAMERA

The new RIDGID® micro CA-100 Inspection Camera, the next evolution of the SeeSnake® micro Inspection Camera, allows you to perform more detailed visual inspections in even harder-to-reach areas. Its comfortable pistol-grip design, one-hand controls, and large screen make it easy to see into the tightest spots. The micro CA-100 comes standard with a rugged 0.7", (17 mm) anodized aluminum camera head with four super bright LEDs to see into the darkest areas.

Easily rotate the active image counter-clockwise to see in any situation. With an available 6 mm camera accessory, the micro CA-100 Inspection Camera allows you to service and identify problems in more places. The RIDGID micro CA-100 Inspection Camera provides solutions whenever and wherever you need them.

Specifications

- Display.....3.5" Colour LCD (320 x 240 resolution).
- Camera Head.....Aluminum Construction 17 mm diameter.
- Lighting.....4 Adjustable LEDs.
- Cable Reach.....3' (90 cm) expandable to 30' (9 m) w/optional extensions.
- Image Rotation.....4 x 90°.
- Video Output.....3' (90 cm) RCA Cable (included).
- Waterproof.....Camera & Cable to 10' (3 m) when properly assembled.
- Power Source.....4 AA Batteries.
- Attachments.....Mirror, Hook & Magnet.
- Weight.....1.7 lbs. (0,76 kg).



MICRO CA-25 INSPECTION CAMERA

The new RIDGID® micro CA-25 is a compact handheld inspection camera with a fixed 17 mm imager head for basic and short-range inspection jobs.

The micro CA-25 features a 17 mm aluminium imager head with 4 ultra-bright LED lights, bringing superior image quality to its 2.4" Colour LCD Screen. It also features Video Out for transferring live images to external devices and 180° Digital Image Rotation for getting upright images.

Included with the micro CA-25 in a hard shell plastic case are a hook, magnet, mirror and RCA cable.

Specifications

- Display.....2.4" Colour LCD (480 x 234 resolution).
- Camera Head.....Aluminum Construction 17 mm diameter.
- Lighting.....4 Adjustable LEDs.
- Cable Reach.....3' (90 cm) fixed.
- Image Rotation.....2 x 180°.
- Video Output.....3' (90 cm) RCA Cable (included).
- Waterproof.....Camera & Cable to 3' (90 cm).
- Power Source.....4 AA Batteries.
- Attachments.....Mirror, Hook & Magnet.
- Weight.....1.5 lbs. (0,68 kg).



MICRO CA-300 INSPECTION CAMERA

Documentation made easy with the new RIDGID® micro CA-300 Inspection Camera, the next evolution of the microEXPLORER®. Easily record still images and videos of problems in hard-to-reach areas and save these on the internal memory (235 mb) or the included 4 GB SD-card. Comfortable pistol-grip design, large screen and rugged anodized aluminum camera head with four bright LEDs make it easy to detect and diagnose the unreachable. Get the perfect view with enhanced features like image rotation and digital zoom. Besides the replaceable 3.7 V Li-Ion battery, the micro CA-300 can also be powered with the included AC Adapter which is ideal for time consuming (drain) inspection jobs or when you simply run out of battery.

Specifications

Display.....	3.5" Colour LCD (320 x 240 resolution).
Camera Head.....	Aluminum Construction 17 mm diameter.
Lighting.....	4 Adjustable LEDs.
Cable Reach.....	3' (90 cm) expandable to 30' (9 m) w/optional extensions.
Video Output.....	3' (90 cm) RCA Cable (included).
Waterproof.....	Camera & Cable to 10' (3 m) when properly assembled.
Power Source.....	3.7 V Li-Ion Battery / 5 V AC Adapter.
Image/Video.....	JPEG / AVI (640 x 480 resolution).
Image Rotation.....	4 x 90°.
Digital Zoom:	Yes.
Internal Memory.....	Yes, 235 mb.
SD-card.....	Up to 32 GB (4 GB card included).
Audio Recorder.....	Yes, integrated.
Speaker.....	Yes, integrated.
Headset.....	Yes, included.
Attachments.....	Mirror, Hook & Magnet.
Weight.....	1.7 lbs. (0,76 kg).

Now available for the micro CA-300 and micro
CA-100: flexible 6 mm imager head with 1 meter or 4 meter cable



SEESNAKE® DIGITAL ADAPTOR

The fastest, easiest way to go digital.

With the RIDGID® microEXPLORER or micro CA-300 Digital Inspection Camera and the SeeSnake digital adaptor, you'll immediately add digital image and video recording capabilities and a secondary playback screen to your existing drain inspection monitor.

Features

- Digital recording made easy. Simply connect the SeeSnake digital adaptor into a microEXPLORER or micro CA-300 Digital inspection camera and a SeeSnake monitor and start recording.
- Broad compatibility. Use the adaptor with any SeeSnake monitor with a video-out jack.
- Quick and easy operation. With just a push of the button you can take digital still images and video.

Specifications

Video1.....AVI (320 x 240).

Images1.....JPEG (1280 x 1024).

Audio2.....Yes.

ConnectionMale RCA.

Length.....6' (1,8 m).

1 Requires a microEXPLORER or CA-300 camera.

2 Requires Audio Memo Accessory for microEXPLORER camera.



6 MM DIAMETER IMAGER HEAD ACCESSORY

- Nearly one-third the size of the standard camera head.
- Enables detailed inspections in very confined spaces.
- 4 LED lights provide clear images.
- Fully flexible cables for easy navigation.
- Sleek aluminum construction withstands demanding applications.
- Compatible with: RIDGID® micro CA-100, micro CA-300, microEXPLORER and SeeSnake micro.



DRAIN CLEANING HAND TOOLS

POWER SPIN WITH AUTOFEED®

- Clears up to 1 1/2" (40 mm) lines.
- Pull trigger and turn handle, or add any variable speed (left / right) chuck drill machine for extra power.
- Cable self-feeds down drain.
- No mess. Hands don't touch cable.
- Equipped with 1/4" (6,3 mm) x 25" (7,6 m) cable with straight auger



KWIK-SPIN® HAND SPINNER WITH AUTOFEED®

- Light-duty product for drains up to 1 1/2" (40 mm).
- Comfortable hand grip eases effort.
- Equipped with 1/4" x 25" (6,3 mm x 7,6 m) Maxcore cable with straight auger.
- Two-way AUTOFEED® keeps hands and work area clean.



K-25 HAND SPINNER

For 3/4" (20 mm) to 1 1/2" (40 mm) Drain Lines

The professional's choice for many years, the Model K-25 Hand Spinner offers premium quality. It's the ideal tool for the user who demands the best.

Features include:

- Premium-quality, precision machined, 3-jaw chuck to firmly secure cable. Releases cable with the flick-of-the-wrist.
- Cast aluminum ribbed hand grip that won't slip in your hand.
- Rotary molded plastic drum that won't dent or rust – cleans easily.
- Available in bulb head and drop head models. 5/16" (8 mm) x 25' (7,6 m) vinyl-wrapped inner core, kink-resistant cables.
- Well balanced for comfortable operation.
- Drum Capacity: 5/16" (8 mm) x 25' (7,6 m).
- Works through traps and bends in sinks, tubs, drinking fountains, lavatories, urinals, vent pipes.



SINK MACHINES

K-45AF SINK MACHINE

For 3/4" (20 mm) to 2 1/2" (75 mm) Drain Lines

- Excellent for small line cleaning. Opens clogged lavatory, sink lines, urinals, and tub/shower drains.
- 1/4" (6 mm) cables best for 3/4" (20 mm) to 1 1/2" (40 mm) lines.
- 5/16" (8 mm) cables best for 3/4" (20 mm) to 1 1/2" (40 mm) lines.
- 3/8" (10 mm) cables best for 1 1/4" (30 mm) to 2 1/2" (75 mm) lines.
- Advanced two-way AUTOFEED® keeps hands and work area clean – advances & retrieves cable with push of a lever.
- Lightweight, easy-to-use, no setup required.
- Variable speed power unit rotates cable 0-600 RPMs.
- Two-piece twist lock canister with interchangeable inner drum.
- Makes cable changeout simple; easy to match the right cable to the job.
- Inner drum prevents water leaks and greatly reduces cable flip-over inside the drum.
- Drums won't rust or dent – ever.
- Drum Capacity: 50' (15 m) of 5/16" (8 mm) or 35' (11 m) of 3/8" (10 mm).
- Includes RIDGID® drain cleaning gloves and operator's manual.

K-45AF-5 shown above includes T-250 Tool Set:

- T-203 Bulb Auger.
- T-217 Drop Head Auger.
- T-205 "C" Cutter.
- A-13 Pin Key.
- T-210 Spade Cutter.



K-40 SINK MACHINE

The Model K-40 Sink Machine is ideal for cleaning small secondary drain lines from 3/4" (20 mm) to 2 1/2" (75 mm).

- 1/4" (6 mm) cables best for 3/4" (20 mm) to 1 1/2" (40 mm) lines.
- 5/16" (8 mm) cables best for 3/4" (20 mm) to 1 1/2" (40 mm) lines.
- 3/8" (10 mm) cables best for 1 1/4" (40 mm) to 2 1/2" (75 mm) lines.

The K-40 sits flat on the floor or countertop and also tips onto its back for easy access to sink drains and bathtubs full of water. The K-40 practically eliminates job site cleanup thanks to the patented Guide Hose two-way AUTOFEED®. It completely contains the rotating cable and eliminates any waste water splashing or spraying.

- 175 W induction motor quietly delivers enough torque to clear even the toughest blockages.
- Premium-quality, compression-wound inner core cable combines strength and flexibility to resist kinking.
- Two-piece "twist lock" drum housing will not dent or corrode and allows easy access to the inner drum and cable.
- Special inner drum design virtually eliminates cable flip-over inside the drum and drum leakage.
- Two-way AUTOFEED advances and retrieves the drain cleaning cable with a simple push of a lever keeping you and the work area clean.
- Includes RIDGID® drain cleaning gloves and operator's manual.



DRUM MACHINES

K-400 DRUM MACHINE

For 1 1/2" (30 mm) to 4" (110 mm) Drain Lines

The Model K-400 offers several unique, user-friendly features to make the toughest drain cleaning jobs easier and hassle-free. Designed with a sleek profile, the Model K-400 is a great fit for drain cleaners, service plumbers, facility and institutional maintenance departments and property management companies.

- 3/8" (10 mm) cable best for 1 1/2" (40 mm) to 3" (75 mm) lines.
- 1/2" (12 mm) cable best for 3" (50 mm) to 4" (110 mm) lines.
- Integrated Transport Cart – allows for easy movement to and from the job site.
Heavy-duty, large wheels easily navigate over bumps and up stairs.
- Integrated Telescoping Handle – provides high-handle height during transport.
- Cable Control System – causes the drum to stop spinning when the blade becomes lodged in a blockage, limits potential for cable to flip-over in the drum and helps to indicate to operator when blockages are encountered.
- "Solid Core" Cable – uses tough 3/8" (10 mm) or 1/2" (12 mm) Integral Wound (IW) solid core cable that is rugged and kink resistant.
- AUTOFEED – offered as an accessory, this patented, automatic cable feed powers cable in and out of the drain. Reverse the direction of the AUTOFEED and the cable feeds back into the drum.

Specifications

- Drum Capacity: 100' (30,5 m) of 3/8" (10 mm) Diameter Cable or 75' (22,5 m) of 1/2" (12 mm) Diameter Cable.
- Motor: 380 W, 230 V motor spins cable at 165 RPM.
- Weight (Machine Only): 45 lbs. (20,4 kg).
- Dimensions: Length 21" (53 cm) 24" (61 cm) with AUTOFEED, Height 23" (58,5 cm) Width 17" (43,2 cm).

All Model K-400 machines are supplied with RIDGID® drain cleaning gloves, operator's manual and instructional video.



K-3800 DRUM MACHINE

For 3/4" (20 mm) to 4" (110 mm) Drain Lines

- A powerful, easy to transport, versatile machine for cleaning indoor drains. Requires minimal setup to clean sink lines, floor drains and roof vents.
- Rugged, corrosion-resistant molded cable drum won't dent or rust. The drum tilt adjusts for proper cable feed angle. Inner-drum guards against cable flip-over inside the drum.
- Cable drum's quick-release and built-in hand-holds allow easy cable change and transport.
- Maximum drum capacity is 100' (30,5 m) of 3/8" (10 mm) or 90' (27 m) of 1/2" (12 mm) continuous length cable:
 - 3/8" (10 mm) cable best for 1 1/2" (40 mm) to 3" (75 mm) lines up to 100' (30,5 m).
 - 1/2" (12 mm) cable best for 2" (50 mm) to 4" (110 mm) lines up to 90' (27 m).
- Optional sink drum holds up to 50' (15 m) of 5/16" (8 mm) or 1/4" (6 mm) cable.
- Ideal for cleaning through 3/4" (20 mm) to 1 1/2" (40 mm) sink traps.
- Powerful 175 W Universal Motor spins cable at 240 RPM. When cable hits blockage, motor gears down automatically to deliver more power and enhance operator control.
- Tools connect to cable in seconds.
- Includes a heady duty AUTOFEED® system (all modes except machine only).
- Includes RIDGID® leather drain cleaning gloves and operator's manual.



K-750 DRUM MACHINE

For 3" (75 mm) to 8" (200 mm) Drain/Sewer Lines

- Powerful, self-contained machine ideal for lateral lines. Easy to transport, minimal set-up – attach a tool and go.
- Autofeed advances, retrieves cable with a push of a lever, up to 20' (6 m) per minute.
- Versatile AUTOFEED® control adjusts for either 5/8" (16 mm) or 3/4" (20 mm) cable with a twist of a screwdriver.
- Recommend 5/8" (16 mm) cable for 3" (75 mm) to 6" (150 mm) drain lines up to 150' (48 m).
- Recommend 3/4" (20 mm) cable for 4" (110 mm) to 8" (250 mm) drain lines up to 200' (62 m).
- Cable spins at 200 RPM.
- Tough, corrosion-resistant cable drum withstands harsh treatment and abuse. It will not dent or corrode and cleans easily.
- Drum holds 100' (30,5 m) of 3/4" (20 mm) or 125' (35 m) of 5/8" (16 mm) cable and is designed for quick, easy removal.
- Well-balanced design gives machine a lightweight "feel." •Transport wheels ease loading into service truck/van.
- Equipped with 550 W induction motor.
- Includes RIDGID® PVC drain cleaning gloves and operator's manual.

Standard 3/4" (20 mm) Tool Set Includes:

- T-406 Spade Cutter.
- T-407 Retrieving Auger.
- T-411 2" (50 mm) Cutter.
- T-413 3" (75 mm) Cutter.
- T-414 4" (110 mm) Cutter.

Standard 5/8" (16 mm) Tool Set Includes:

- T-403 3" (75 mm) P-Trap Cutter.
- T-407 Retrieving Auger.
- T-406 Spade Cutter.
- T-411 2" (50 mm) Cutter.
- T-413 3" (75 mm) Cutter.



K-7500 DRUM MACHINE

For 3" (75 mm) to 10" (250 mm) Lines

- The performance, cable control, durability, and manoeuvrability demanded by professional users. Ideal for any tough job, such as roots – up to 250' (76 m).
 - Recommend 5/8" (16 mm) cable for 3" (75 mm) to 6" (150 mm) drain lines up to 250' (76 m).
 - Recommend 3/4" (20 mm) cable for 4" (110 mm) to 10" (250 mm) drain lines up to 250' (76 m).
- Cable spins at 200 RPM.
- Powerful, yet quiet, 600 W universal motor and gearbox bear down as cutter engages tough obstructions.
 - Provides audible and visual signals to operator.
- Inner-drum and ball bearing distributor arm work with motor/gearbox system to reduce chance of cable flip-over inside the drum.
- Main and inner drums won't rust, split or dent – ever, and clean easily for professional appearance. Main drum holds up to 100' (30,5 m) of 3/4" (20 mm) cable or 125' (38 m) of 5/8" (16 mm) cable.
- Powerful autofeed® mechanism has grease fittings and an open design for easy maintenance; advances and retrieves cable up to 22' (6,7 m) per minute.
- Two position stair climber eases transport and loading – eliminates extra cost for loading wheels.
- Narrow profile allows machine to fit through bathroom doors.
- Handles adjust to desired height to ensure balanced transport.
- Includes RIDGID® PVC drain cleaning gloves and operator's manual.

Standard Accessories

T-406 – Spade Cutter.

T-407 – Retrieving Auger.

T-411 – 2" (50 mm) Double Cutter.

T-413 – 3" (75 mm) Double Cutter.

T-414B – 4" (110 mm) Double Cutter – (Blade only).

T-416B – 6" (150 mm) Double Cutter – (Blade only).

T-408 – Sawtooth Cutter.

T-403 – 3" (75 mm) P-Trap Cutter.

T-468 – 3/4" (20 mm) Flexible Leader.

Tool Box, Hex Key, RIDGID PVC Drain Cleaning Gloves.

For 5/8" (16 mm) machine package (Catalog No. 61512), the T-468 Leader is replaced with the T-458 Leader and the 6" (150 mm) Double Cutter Blade is eliminated.



SECTIONAL MACHINES

K-50 SECTIONAL MACHINE

For 3/4" (20 mm) to 4" (110 mm) Drain Lines

- Compact, versatile, professional's machine. Capable of running three different size cables: 5/16" (8 mm), 3/8" (10 mm) and 5/8" (16 mm). The perfect, all-around sink, shower and floor drain machine. Weighs less than 40 lbs (18 kg).
- Unique, easy-to-use, instant-acting cable clutch maximizes operator control:
 - Pull handle down and cable spins at 400 RPM.
 - Release handle, cable stops instantly.
- Uses sections of 5/8" (16 mm) cable, cleans 1 1/4" (32 mm) to 4" (110 mm) lines up to 100' (30 m).
 - C-8 best for 1 1/4" (32 mm) – 3" (75 mm) drains.
 - C-9 best for 2" (50 mm) – 4" (110 mm) drains.
- Equipped with an A-17 adapter, runs up to 50' (15 m) of 5/16" (8 mm) or 35' (11 m) of 3/8" (10 mm) continuous length cable.
 - 5/16" (8 mm) best for 3/4" (20 mm) to 1 1/2" (40 mm) lines.
 - 3/8" (10 mm) best for 1 1/4" (32 mm) to 2" (50 mm) lines.
- Equipped with 300 W motor.
- Includes A-1 RIDGID® drain cleaning mitt and operator's manual.



K-60SP SECTIONAL MACHINE

For 1 1/4" (32 mm) to 6" (150 mm) Drain Lines

- A compact machine for institutional, commercial or residential cleaning. Also ideal for septic tank vacuum truck operators. Small enough to fit into cramped spaces, yet powerful enough to clear tough blockages.
 - Ideal for rooftop vent stacks. Rear handle allows for easy transporting up ladders and onto rooftops.
 - Unique, easy-to-use, instant-acting cable clutch maximises operator control.
 - Push handle down, cable spins at 600 RPM.
 - Release handle, cable stops instantly.
 - Simple adjustment knob allows unit to spin both 7/8" (22 mm) and 5/8" (16 mm) diameter cable. Adjusts in seconds.
 - 7/8" (22 mm) cable (C-10) cleans 2" (50 mm) to 6" (150 mm) lines through 150 feet (46 m).
 - 5/8" (16 mm) cable (C-7, C-8, C-9) cleans 1 1/4" (32 mm) to 4" (110 mm) lines through 125 feet (38 m).
 - Remove only two bolts to access jaw set for cleaning or replacement. Removal of same bolts provides access to belt drive.
 - Equipped with 700 W motor.
 - Includes A-1 RIDGID® drain cleaning mitt and operator's manual.
- K-60SP-SE shown above includes:
- K-60SP Machine.
 - A-1 RIDGID Drain Cleaning Mitt.
 - A-60-12 Rear Guide Hose.
 - A-62 Cable Kit, includes:
 - A-8 Cable Carrier.
 - Five Sections Of C-10, 7/8" (22 mm) Cable, Total 75' (23 m).
 - A-61 Tool Kit, includes:

- T-101 Straight Auger.
- T-102 Funnel Auger.
- T-107 Spade Cutter.
- T-125 Retrieving Auger.
- T-150-1 Sharktooth Cutter.
- A-3 Tool Box.
- A-12 Pin Key.



K-1500SP SECTIONAL MACHINE

For 2" (50 mm) to 10" (250 mm) Drain/Sewer Lines

- A gasoline engine makes the Model K-1500G well-suited for cleaning lines in remote locations where electrical power is unavailable. Cuts through roots fast.
- Unique, easy-to-use, instant-acting cable clutch maximizes operator control.
 - Pull down on the handle and the cable spins at 600 RPM.
 - Release handle, cable stops instantly.
- Comes equipped to use 1 1/4" (32 mm) cable to clean 3" (75 mm) to 10" (250 mm) lines through 300 feet (92 m).
- 6 HP gasoline engine drives cable via four-speed transmission. Allows the operator to vary the cable spinning speed to fit the application. Forward speeds of 333, 425 and 500 RPM, and a reverse speed of 250 RPM.
- Low-profile, four-wheel cart easily rolls to the job. Guards against machine upset and possible fuel spillage.
- Includes A-1 RIDGID® drain cleaning mitt and operator's manual.

Machine Dimensions:

Width Wheel to Wheel: 26" (66 cm)

Length Including Kickstand: 28" (71 cm)

Ground to Top of Handle: 38" (97 cm)

Back of Handle to Front: 49" (124 cm)

Ground to Top of Housing Shell: 27" (69 cm)

A-17 Manhole Guide Pipe Adjusts 7' (2,1 m) to 12' (3,7 m) supports cables, locks into place quickly.



RODDER MACHINE

K-1000 RODDER MACHINE

For 8" (200 mm) to 24" (600 mm) Drain/Sewer Lines

- A rugged, compact machine well-suited for straight main line work in municipalities, universities, institutions and industry. Drives sectional sewer rods through long, straight runs of larger diameter pipe – up to 500 feet (150 m).
- Equipped with a 6 HP gasoline engine and forward/reverse transmission. Rod rotates at 133 RPM in forward and reverse at full throttle.
- Spring-loaded throttle control is hand operated. Varies rod speed within range. Returns engine speed to idle and disengages clutch when operator releases throttle.
- Adjustable torque limiter minimizes kinking of rods and excessive torque through transmission system.
- Large 10" (250 mm) wheels on frame for optimal transport.

Rods, Rodding Tools, and Accessories

- RIDGID® K-10 quick-connect couplings make rodding jobs easier than ordinary threaded couplings:
 - To connect rods, align and snap them together for a solid connection.
 - To disconnect, insert the pin key and slide the couplings apart.
- One coupling pin key replaces assembly tool and wrench required to connect ordinary threaded couplings. Easy-to-add rods or tools. No bulky reels.
- Convert existing tools and rods to the RIDGID quick-connect system:
 - One pair of R1 and R2 couplings substitute for one threaded coupling.
 - Standard left-hand and-right hand rod nuts fasten R1 and R2 couplings to existing rods.
 - R-8 couplings adapt each rod tool to quick-connect system.
 - A-2704 adapts rod couplings to larger-size tool couplings.
- RIDGID rods meet ASTM-270 specifications.



WATER JETTERS

KJ-1590 II ELECTRIC WATER JETTER

For 1 1/4" (32 mm) to 6" (150 mm) Drain Lines

RIDGID® Water Jetting Machines are constructed for cleaning a drain. The highly flexible, lightweight hose blasts through sludge, soap and grease blockages. As you pull the hose back, it power washes the line, flushing debris away and restoring drain lines to their full, free-flowing capacity.

Powerful: Actual working pressure of 1160 PSI (80 bar) and flow of 4 GPM (15l) for fast, effective cleaning of lines.

Easy to Use: Thrust propels the hose down the line. You simply guide the hose into the drain.

Pulse Action: Activate the Model KJ-1590's pulse action to easily negotiate difficult bends and traps.

Portable: The cart with heavy duty wheels rolls the jetter to the job site with the greatest ease.

Versatile: Optional Pressure Wash Package cleans cables, tools and other heavily soiled equipment.

- Powerful 2,2 kW motor with overload protection.
- 3-Plunger pump with pulse action.
- Convenient cable storage.
- Dual-type inlet connector with male garden hose coupling.
- Inlet filter, non-return valve and inlet valve.
- Heavy duty steel reel with 20 m of 1/4" hose (1/4" connection).



KJ-2200 WATER JETTER

For 1 1/4" (32 mm) to 6" (150 mm) Drain Lines

This jetter propels a highly flexible hose through 1 1/4" (32 mm) to 6" (150 mm) lines – blasting through sludge, soap and grease blockages. As you pull the hose back, it power scrubs the line flushing debris away, restoring drain lines to their full, free-flowing capacity.

- **Powerful:** Actual working pressure of 2200 psi (150 bar) and flow of 2.4 GPM (9 l/min) for fast, effective cleaning of lines.
- **Easy to Use:** Thrust propels the hose down the line. You simply guide the hose into the drain.
- **Pulse Action:** Activate the Model KJ-2200's pulse action to easily negotiate difficult bends and traps.
- **Portable:** The optional Model H-30 cart rolls the jetter and hose to the job site.

The jetter is easily removed from the cart in seconds for hard to reach drains, indoor applications or remote storage.

- **Convenient:** Standard equipment includes FV-1 foot valve. It makes remote or indoor operation simple and safe. You control the jetting action at the drain while leaving the jetter outdoors.
- **Quality & Dependability:** Triplex pump with corrosion-resistant, forged brass head. Reduced number of fittings, hoses and parts minimizes leaks and down time – keeping you on the job.
- **Versatile:** Optional power washer package cleans cables, tools and other heavily soiled equipment.
- **New and improved 6.5 HP Recoil start gasoline engine starts easily.** Features: ON/OFF switch; choke and throttle controls; easy access oil fill and dip stick.

Foot Pedal

The foot pedal's ON/OFF control gives you total control of the jetting action at the drain opening. It frees both hands to guide the jetting hose into the drain opening and around bends and traps.

Jet Vac

For use with all RIDGID® water jetters:

The Jet Vac attaches to any portable water jetter to quickly move (vacuum) liquid and debris from flooded basements, sumps, swimming pools, construction sites, car wash pits, etc. This cost and time saving product will move up to 60 gallons / 227l of liquid per minute.



KJ-3100 WATER JETTER

For 2" (50 mm) to 10" (250 mm) Drain Lines

The RIDGID® Model KJ-3100 portable water jetter gives you 3000 psi (205 bar) actual working pressure to handle large commercial and industrial applications. This jetter propels a highly flexible and lightweight hose through 2" (50 mm) to 10" (250 mm) lines

– blasting through sludge, soap, grease, and sediment blockages. As you pull the hose back, it power scrubs the line flushing debris away and restoring drain lines to their full, free-flowing capacity – all without the use of harmful chemicals.

- **Powerful:** Actual working pressure of 3000 psi (205 bar) and flow of 5.5 GPM (21 l/min) for fast, effective cleaning of lines.
- **Lightweight Hose:** Hose with nylon braid provides significant weight reduction and increased flexibility – all without reducing strength. Allows the thrust to propel the hose further down the line.
- **Complete:** With the Model KJ-3100's removable hose reel, there is no need to purchase expensive portable hose reels. Standard packages come equipped to handle indoor and remote applications.
- **Convenient:** Completely remove the hose reel to ease loading onto service trucks. Simply rotate the hose reel forward to gain full access to the engine's gas tank and air filter.
- **Maneuverable:** In the heavy-duty 3000 psi (205 bar) jetter category, the RIDGID KJ-3100 is one of the most maneuverable jetters on the market. The unit, on its unique two-wheeled cart, easily fits through standard size doors and can negotiate tight turns with the greatest of ease.
- **Pulse Action:** Activate the Model KJ-3100's pulse action to easily negotiate difficult bends and traps.
- **Quality & Dependability:** Triplex pump with corrosion-resistant, forged brass head. Gear reducer allows pump to run at slower (optimal) speed. Reduced number of fittings, hoses and parts minimizes leaks and downtime – keeping you on the job.
- **Versatile:** Power wash package and chemical injector system cleans cables, tools, and other heavily soiled equipment.
- **Quick Start:** 16 HP Recoil start gasoline engine starts easily. Features: ON/OFF switch; fuel shutoff; choke and throttle controls; easy access oil fill and dip stick.

