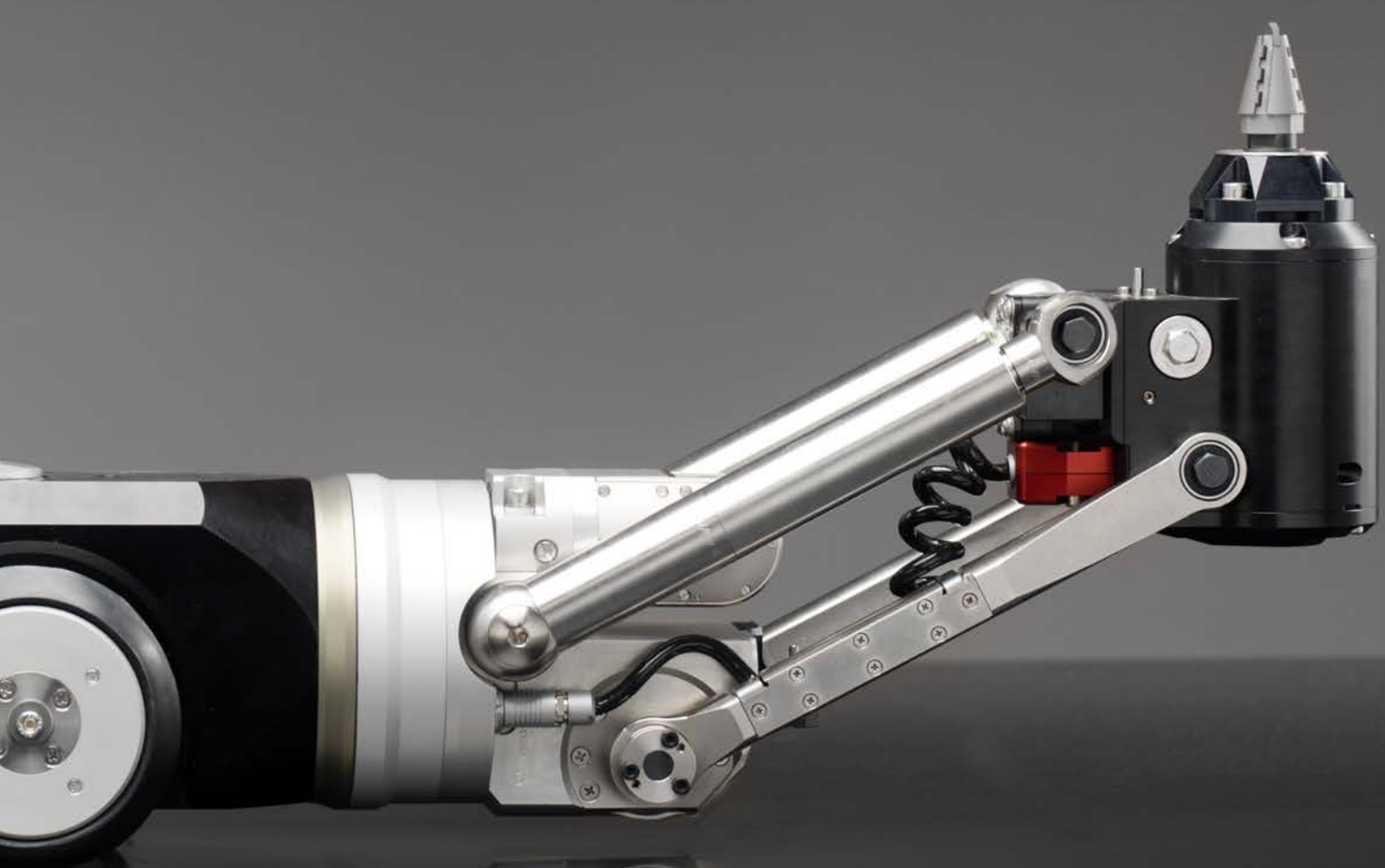
PROKASRO

Product Catalogue



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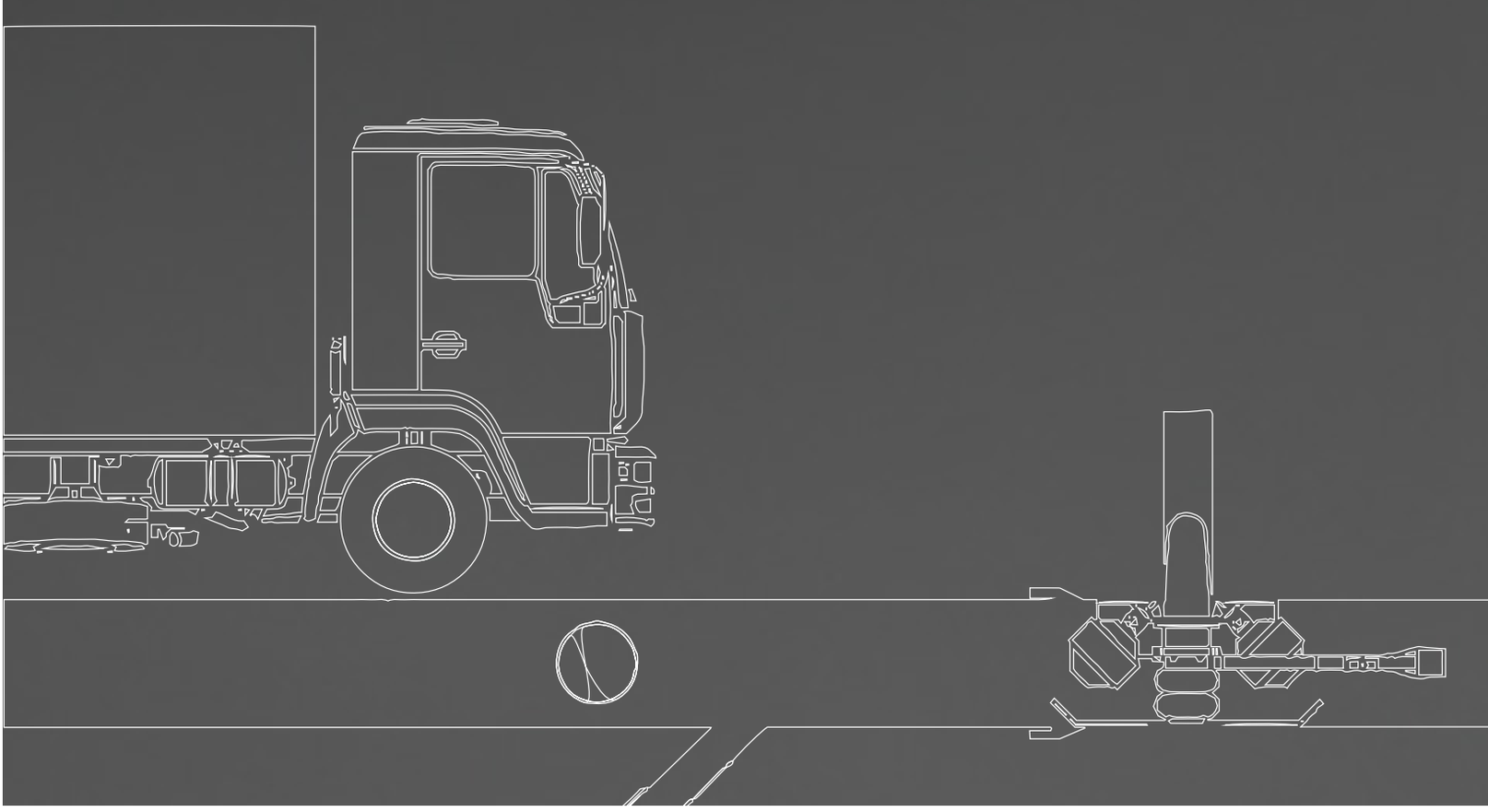
Technology that works for You

Intact sewer systems are an important part of urban infrastructures. Thus, the regular inspection and rehabilitation of the sewers have a correspondingly high importance. Our name stands for progressive sewer rehabilitation robotic systems - we develop tailor-made solutions for exactly such work. With our products many sewers can be restored to a first-class state. This is significantly easier and cheaper as placing new pipes. This secures the entire underground supply and thus maintains ecological, hygienic and technical standards.

Working Robots, Systems for Lateral Intake Rehabilitation, CCTV-Systems and UV-Technology; ProKASRO is a full-range supplier for sewer rehabilitation. We provide technology for damage diagnosis and repair in the ground without digging, traffic congestion or noise. Due to short completion times, a shot-off of the sewer is unnecessary. This ensures an efficient rehabilitation and a fast return back to the original state of the infrastructure.

The complete manufacturing of ProKASRO products takes place 100 % in house: from the individual product idea up to the state of the art production. All components are produced and mounted internally. 100 % Made in Germany is an essential statement for ProKASRO.



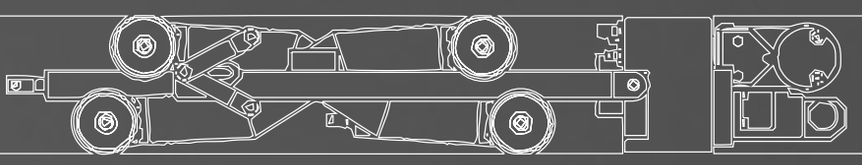
Products

Our KASRO robot systems and systems for Lateral Intake Rehabilitation consist of individual components which are combinable among themselves. Any respectively desired rehabilitation solution can be accomplished. The rehabilitation work is controlled and monitored in the vehicles, equipped individually by us on request. Alternatively, this is possible by transportable mobile control units.
In the field of UV-Technology ProKASRO, is also diversified. We can cure your UV liners from DN 150 to DN 1500 - partly mobile or in a rehabilitation vehicle.

Service

ProKASRO is there for You - no matter where in the world you need us. We are on-site with our service technicians. In case you need our products only temporary, we have them ready for rental purposes. We bring our equipment to your construction site and show the performance of our products directly on-site. Of course we also train your employees.

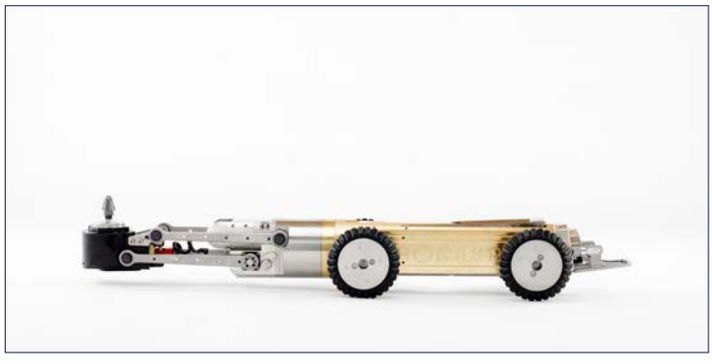
A ProKASRO solution for sewer rehabilitation is an acquirement with sustainable and long-term benefit. We support you therefore also with financial opportunities. Please talk to us!



ProKASRO Working Robots electric

ProKASRO Working Robots electric

KASRO working robot 1.7
DN 130 - 400



Article number: 3010017-E

- self-propelled working robot, 2000 W motor incl.
- both driving axles are powered by independent electric motors
- all movements can be performed simultaneously

Optional:
- various special wheelsets are available for difficult traction conditions (Article number: 3010020)
- 4th axis (Article number: AR175100)
- Motor: electric 2 kW (Article number: 1021438-E) suitable for KASRO working robots: 1.7, 1.9 also suitable for KASRO working robots 3.5, 3.6, 4.0
- 4th axis „Slim-Line“ (Article number: 3010010)
- Motor „Slim-Line“ 1200 W (Article number: 1021442-E) applicable from DN130

Technical Data	
Dimensions	Length without milling motor 650 mm + 140 mm swivelling connection, diameter 108 mm
Movements	Rotation 540° (0-3 U/min), up/down 0-10 mm/s, drive 0-10 m/min)
Weight	25 kg, with accessories 35 kg
Operating media	230 V
Milling Motor	electric 2 kW: 2000 W
Tools	Milling and grinding tools according to tool list, custom made products on request

KASRO working robot 4.0
DN 200 - 600

Article number: 1020003-E

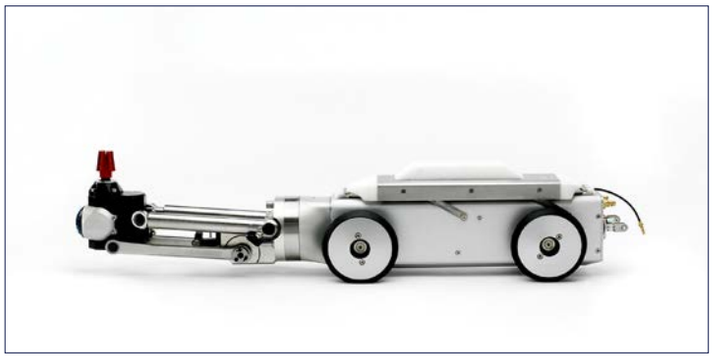
- self-propelled working robot
- all movements can be performed simultaneously
- milling in difficult geometries gets possible, e.g. a saddle of a pipe union
- the tool head can be tilted 90° in the direction of driving by means of the 4 th axis

Optional:
- expansion to DN 800 is possible (Article number: 1020003-Aufsatz)
- oval profile attachment module to work in oval profiles (Article number: 1020003-Eiprofil)

- Spare motor: electric 3 kW (Article number: 1021435-E)
- Spare motor: electric 2 kW (Article number: 1021438-E)

Technical Data	
Dimensions	Length without milling motor 760 mm, Width 134 mm, Height 154 mm
Movements	Rotation 540° 0-2/min; Lift 250 mm, 0 –10 mm/s; Swivel of tool head by 90°, drive (back/forward) 0–14 m/min
Weight	41 kg, with accessories 98 kg
Operating media	230 V
Milling Motors	electric 3 kW: 3000 W electric 2 kW: 2000 W
Tools	Milling and grinding tools according to tool list, custom made products on request

KASRO working robot 3.5
DN 200 - 600



Article number: 1020000-E

- driven by a self-propelled unit
- basic frame can be mounted to the pipe wall by using air pads
- precison work is possible, in the same way like a milling machine
- tool head: see KASRO working robot 4.0
- 340° swivel colour camera with remote and close-up focus
- 2000 W and 3000 W motor inclusive

Optional:
- expansion to DN 800 is possible (Article number: 1029000)
- oval profile attachment module to work in oval profiles
- Spare motor: electric 3 kW (Article number: 1021435-E)
- Spare motor: electric 2 kW (Article number: 1021438-E)
  suitable for KASRO working robots: 3.5, 3.6, 4.0

Technical Data	
Dimensions	Length 960 mm, Width (without wheels) 92 mm, Height 145 mm
Movements	Endless 540°, 0-2/min; Feed 200 mm, 0-10 mm/s; Lift 250 mm, 0-10 mm/s; tilting tool head 90°
Weight	32 kg, with carriage and camera 52 kg
Operating media	230 V
Milling Motors	electric 3 kW: 3000 W electric 2 kW: 2000 W
Milling tools	Milling and grinding tools according to tool list, custom made products on request

KASRO self-propelled unit
DN 200 - 600

Article number: 1025100-E

- drive module for positioning purposes
- driven by four electric motors, one for each axis
- every axis is connected to the respective ends of a scissor-like chassis, that is spread by means of a compressed-air tension buffer
- this drive concept allows two axes to create tractive force in the sewer bed and two axes to create tractive force in the sewer peak
- simultaneously, this prevents that the driving axis is pressed into the box section when driving over disruptions or lateral branch connections
- the resilient retraction of the compressed-air tension buffer compensates for the sewer cross-section alterations

Also applicable as:
- independent drive module for KASRO injection sealing and cap placement system, for the priming attachment
- drive and positioning module for packers or for general transportation tasks

Optional:
- expansion to DN 800 is possible (Article number: 1029000)
- oval profile attachment module

Technical Data	
Dimensions	Length 766 mm, Width 130 mm, Height 130 mm with wheels
Movements	All wheels are driven, driving speed 0-14 m/min
Weight	Drive unit 30 kg base unit
Operating media	Compressed-air 8bar
Traction and thrust force	1000 N (Drive unit)

ProKASRO Working Robots electric

KASRO control unit electro

Article number: 1024350 / 1030002

- Control of the KASRO electric working robot by means of an enlargment for electric milling robots Article number: 1030002
- can be integrated in the vehicle or build as mobile unit
- consists of the electronic control module with all boards, a monitor module, a pneumatic control and the actual control panel
- can be complemented with a data display, video recording devices and a PC
- two joysticks serve as switches
- without heating insert

Optional:

- Add-on of KASRO control unit with heating insert, necessary for all KASRO lateral intake systems (Article number: 1024350)
- Inclusive device for tele maintenance via remote control

Technical Data	
Dimensions control unit	Length 500 mm, Width 1100 mm, Height 950 mm
Dimensions control panel	Length 250 mm, Width 550 mm, Height 260 mm
Weight	185 kg
Operating voltage	230 V / 50 Hz / 10 A and Heater module 230 V / 50 Hz / 6 A

KASRO cable drum with 120 m electric twin cable

Article number: 3010211-E / 3010213-E

- 120 m electric twin cable
- control and supply of the KASRO electric working robots for milling purposes
- two connected lines with a small cross-selection
- small compact alternative to the KASRO combination cable drum
- suitable for all spatula works (see „ProKASRO Working Robots hydraulic“, p. 26)

- KASRO-combination cable drum with pressure monitoring unit (Article number: 3010213-E)
- **not compatible with KASRO electric working robot 3.5, 1.9**
- incl. compressed air preparation, leakage monitoring, rotary feedthrough with compressed air channel and maintenance-friendly access

- Insulation monitoring including insulation transformer for KASRO electric robot systems for self-installation and for mobile usage (operator protection) (Article number: 3010223)

Technical Data	
Dimensions	Length 800 mm, Width 540 mm, Height 790 mm
Weight	280 kg
Operating media	230 V / 50 Hz / 10 A, compressed-air 2,5 m^3/min 12 bar

KASRO-Cable-Control-Unit CCU with 60m / 80 m electric twin cable

Article number: 3010135 / 3010134

- mobile, compact, equipped with wheels to be installed in areas difficult to access
- control of the **electric** KASRO milling robot
- whole control system is installed above the hand-operated drum
- consists of a control board, electric control, monitor/control panel, data display, recording
- cable package consists of a combination cable with twin conductor
- manual cable drum with 60 m hose (Article number: 3010135)
- manual cable drum with 80 m hose (Article number: 3010134)

Technical Data	
Dimensions	Length 750 mm, Width 470 mm, Height 920 mm
Weight	220 kg / 236 kg
Cable length	60 m / 80 m cable combination
Operating media	230 V / 50 Hz / 10 A; compressed-air 2,5 m^3/min, 12 bar
Water tank	12 l

KASRO combination control

Article number: 1024351

- mounted in a rack
- **control of the electric KASRO robot AND of the inspection camera**
- available installed in a rack or mobile in a case
- with all boards, a monitor module, a electric control and the actual control panel
- with monitor, control desk and data-display
- Basic-Software included
- two joysticks serve as switches

Technical Data	
Dimensions control unit	Height 270 mm Width: 500 mm Depth 500 mm
Dimensions control panel	Width 400 mm Depth 200 mm
Weight	30 kg
Operating voltage	230 V

ProKASRO Working Robots electric

KASRO mobile cable drum with 150 m single cable

Article number: 3010212-E / 3010214-E

- 150 m single cable
- control and supply of the KASRO working robot electric for milling purposes
- Camera cleaning and tool cooling is made through one single cable
- **not suitable for lateral intake rehabilitation**

- KASRO-combination cable drum with pressure monitoring unit (Article number: 3010214-E)
- **not compatible with KASRO electric working robot 3.5, 1.9**
- incl. compressed air preparation, leakage monitoring, rotary feedthrough with compressed air channel and maintenance-friendly access

- Insulation monitoring including insulation transformer for KASRO electric robot systems for self-installation and for mobile usage (operator protection)

Technical Data	
Dimensions	Length 800 mm, Width 574 mm, Height 1010 mm
Weight	240 kg
Operating media	230 V / 50 Hz / 10 A

KASRO-Cable-Control-Unit CCU with 110 m single cable

Article number: 3010137

- mobile, compact, equipped with wheels to be installed in areas difficult to access
- control of the **electric** KASRO milling robot
- whole control system is installed above the hand-operated drum
- consists of a control board, electric control, monitor/control panel, data display, recording
- with 110 m single cable
- **not suitable for lateral intake rehabilitation**

Technical Data	
Dimensions	Length 750 mm, Width 470 mm, Height 920 mm
Weight	220 kg
Cable length	110 m
Operating media	230 V / 50 Hz / 10 A; compressed-air 2,5 m^3/min, 12 bar
Water tank	12 l

ProKASRO Working Robots electric

Electro Converter-Kit

Now is the time to ensure YOUR Converter-Kit for the KASRO working robot

What contains the Converter-Kit for the Electro-Robot?

- Pneumatic driven milling robot will be rebuild
  - New combination cable coupling with plug for the electric motor

- Milling motors available:
  - 1200 W for DN 130 for the KASRO working robots
  - 2000 W for DN 150 for the KASRO working robots
  - 3000 W for DN 250 for the KASRO working robots

- Cable drum will be rebuild:
  - Rotary feedthrough within the cable drum is being upgraded

- Control unit will be upgraded for the Electro-Robot

Optional:
- Compressor can be removed
- Generator can be replaced through the battery pack

Notice: Before each conversion, we have to check whether the conversion is possible!

Don´t hesitate, make an appointment with us today for the conversion measure!

Benefits	
power supply via battery packs	• performance is guaranteed for 14 hours
high performance of the KASRO electric motor	• highest efficiency during milling works • reduction of the rehabilitation time on-site
space savings in regards to the rehabilitation vehicle	• smallest rehabilitation vehicle of 3.5 t • normal driver´s license is sufficient • work procedure also in hard-to-reach areas possible
minimal noise level	• comfortable working atmosphere • milling works can be operated anytime without disturbing the general public
environmental sustainability	minimising: • CO2-emissions • Diesel consumption • pollution

Customer example of an electric conversion

Control unit of the converted KASRO milling vehicle

Customer reference: KTF GmbH Börslingen

Cable drum of the converted KASRO milling vehicle

ProKASRO Working Robots pneumatic

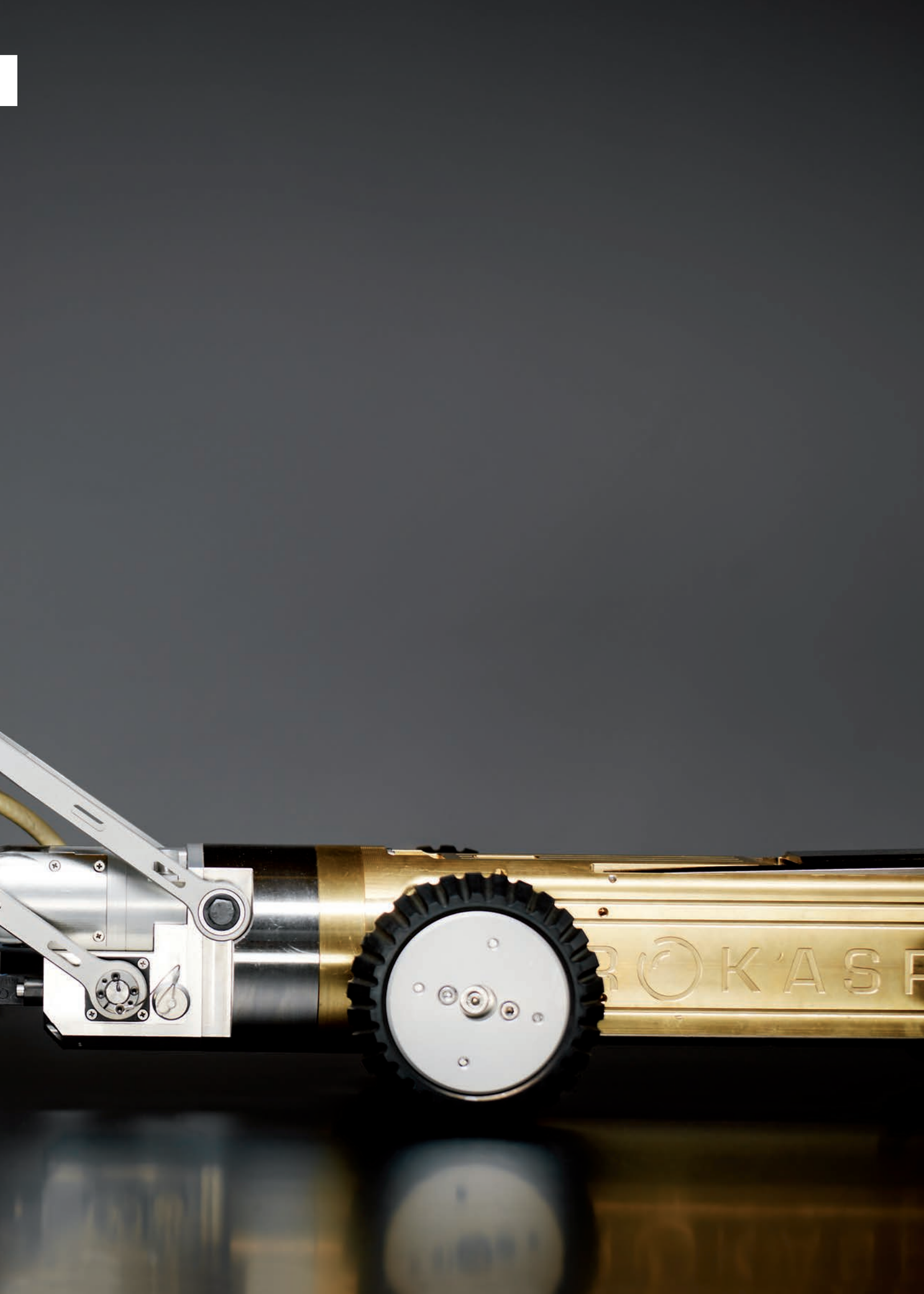
The KASRO Working Robots are developed for rehabilitation work inside sewer pipes. Damage diagnoses and underground repair can be carried out for different pipe diameters from DN 100 up to DN 1000 or even different profiles. Excavation work, unnecessary traffic obstructions and noise are avoided.

Various tool attachments permit the sewer robots to perform milling, grinding, filling, moulding and injection operations. Mainly obstacles such as misplaced pipe connectors, roots, encrustation and deposits, as well as opening connections after short pipe or inliner installation.

The single components are controlled by a suitable supply cable, depending on the model. The robots are driven in different ways - pneumatic, electric, hydraulic. The video signal of the camera is transmitted from the robot to the monitor in the workstation. Through that all action done by the robot can be observed and controlled on the monitor.

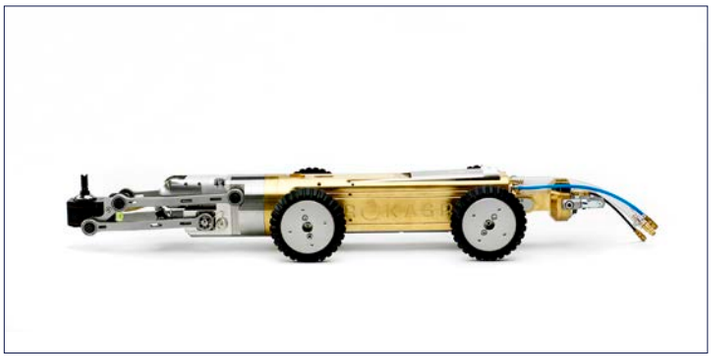
Some of the robots are driven by a multifunctional self-propelled unit.

Branch pipe joints of various sizes are rehabilitated through the KASRO injection sealing system, the KASRO cap placement system and the KASRO 2-component injection sealing system.



ProKASRO Working Robots pneumatic

KASRO working robot 1.7
DN 130 - 400



Article number: 3010017

- self-propelled working robot, 1200 W and 2500 W motor inclusive
- both driving axles are powered by independent electric motors
- rotation 540°, so all movements can be performed simultaneously
- various special wheelsets are available for difficult traction conditions

Optional:
- 4th axis (Article number: 175100)
- high-traction wheelset (Article number: 3010020)
- 4th axis „Slim-Line“ (Article number: 3010010)

Technical Data	
Dimensions	Length without grinding motor 620 mm + 140 mm swivelling connection, diameter 108 mm
Movements	Rotation 720° (0-3 U/min), up/down (0-10 mm/s), drive (0-10 m/min)
Weight	20 kg base unit
Operating media	Compressed-air 12 bar, 2,5 m³/min (Compressor power)
Milling motor	1200 W (DN 150); 2500 W (DN 200 – DN 400)
Milling tools	Milling and grinding tools according to tool list, custom made products on rquest

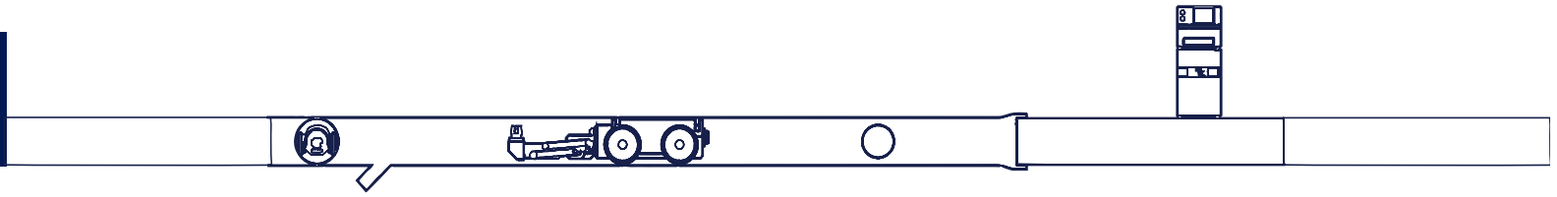
KASRO working robot 4.0
DN 200 - 600

Article number: 1020003

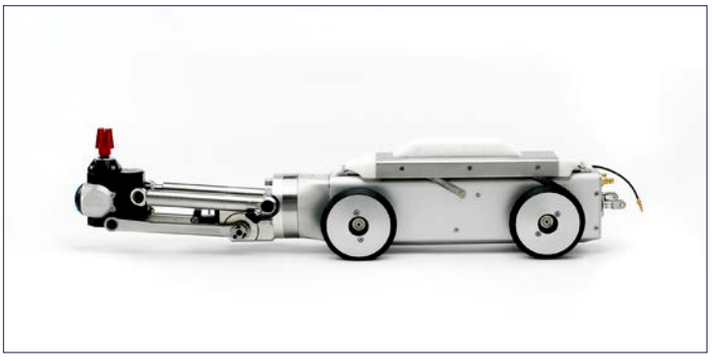
- self-propelled working robot, 2500 W and 3600 W motor inclusive
- milling by compressed-air motor 2500 W, 3600 W
- all movements can be performed simultaneously due to unlimited rotation
- milling in difficult geometries gets possible, e.g. a saddle of a pipe union
- the tool head can be tilted 90° by means of the 4 th axis
- through that the milling motor can be equipped with longer extension shafts to work in smaller diameters

Optional:
- expansion to DN 800 is possible (Article number: 1020003-Aufsatz)
- oval profile attachment module to work in oval profiles (Article number: 1020003-Eiprofil)

Technical Data	
Dimensions	Length without grinding motor 740 mm, Width 134 mm, Height 154 mm
Movements	Endless rotation 0-2/min; Lift 250 mm, 0 –10 mm/s; Swivel of tool head by 90°, Drive (forward/backward) 0 –14 m/min
Weight	36 kg base unit
Operating media	Compressed-air 12 bar; 2,5 m³/min compressor power
Milling Motor	3600 W compressed-air
Milling tools	Milling and grinding tools according to tool list, custom made products on request



KASRO working robot 3.6
DN 200 - 600



Article number: 1020002

- driven by a self-propelled unit, 3600 W motor incl.
- basic frame can be mounted to the pipe wall by using air pads
- precison work is possible, in the same way like a milling machine
- tool head: see KASRO working robot 4.0
- 340° swivel colour camera with remote and close-up focus

Optional:
- expansion to DN 800 is possible
- oval profile attachment module to work in oval profiles

Technical Data	
Dimensions	Length 960 mm, Width (without wheels) 92 mm, Height 145 mm
Movements	Endless rotation, 0-2/min; Feed 200 mm, 0-10 mm/s; Lift 250 mm, 0-10 mm/s; tilting tool head 90°
Weight	32 kg, with carriage and camera 52 kg
Operating media	Compressed-air 12 bar, 2,5 m³/min (Compressor power)
Milling Motor	3600 W / 2500 W compressed-air
Milling tools	Milling and grinding tools according to tool list, custom made products on request

KASRO self-propelled unit
DN 200 - 600

Article number: 1025100

- drive module for positioning purposes
- driven by four electric motors, one for each axis
- every axis is connected to the respective ends of a scissor-like chassis, that is spread by means of a compressed-air tension buffer
- this drive concept allows two axes to create tractive force in the sewer bed and two axes to create tractive force in the sewer peak
- simultaneously, this prevents that the driving axis is pressed into the box section when driving over disruptions or lateral branch connections
- the resilient retraction of the compressed-air tension buffer compensates for the sewer cross-section alterations

Also applicable as:
- independent drive module for KASRO injection sealing and cap placement system, for the priming attachment
- drive and positioning module for packers or for general transportation tasks

Optional:
- expansion to DN 800 is possible
- oval profile attachment module

Technical Data	
Dimensions	Length 766 mm, Width 130 mm, Height 130 mm with wheels
Movements	All wheels are driven, driving speed 0-14 m/min
Weight	Drive unit 30 kg base unit
Operating media	Compressed-air 8bar
Traction and thrust force	1000 N (Drive unit)

ProKASRO Control Units and Cable Drums

KASRO-Cable-Control-Unit CCU

Article number: 3010130

- mobile, compact, equipped with wheels to be installed in areas difficult to access
- control of all KASRO **air-milling robots** and **lateral intake systems**
- whole control system is installed above the hand-operated drum
- consists of a control board, pneumatic control, monitor/control panel, data display, recording
- cable package consists of a combination cable with twin conductor

Technical Data	
Dimensions	Length 750 mm, Width 470 mm, Height 920 mm
Weight	190 kg
Cable length	60 m cable combination (expandable up to 80 m)
Operating media	230 V / 50 Hz / 10 A; compressed-air 2,5 m^3/min, 12 bar
Water tank	12 l

KASRO control unit

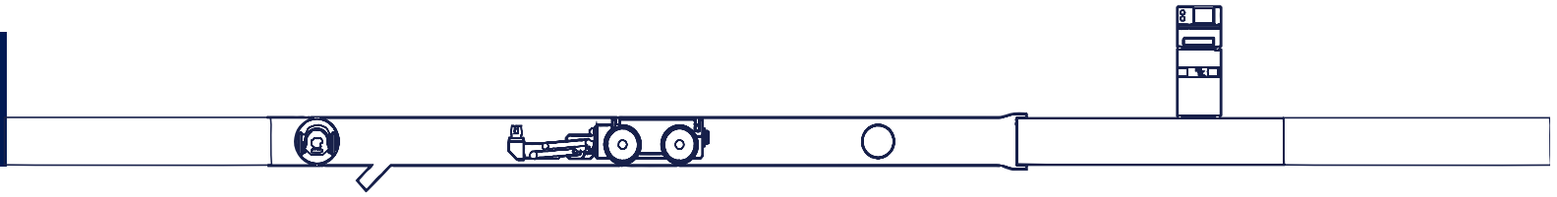
Article number: 1024350

- all KASRO working robots and KASRO branch pipe rehabilitation systems can be controlled
- can be integrated in the vehicle or as mobile unit within a Flightcase
- consists of the electronic control module with all boards, a monitor module, a pneumatic control and the actual control panel
- can be complemented with a data display, video recording devices and a PC
- two joysticks serve as switches
- without heating insert

Optional:

- Add-on of KASRO control unit with heating insert, necessary for all KASRO lateral intake systems (Article number: 1024350)
- Inclusive device for tele maintenance via remote control

Technical Data	
Dimensions control unit	Length 500 mm, Width 1100 mm, Height 950 mm
Dimensions control panel	Length 250 mm, Width 550 mm, Height 260 mm
Weight	185 kg
Operating voltage	230 V / 50 Hz / 10 A and Heater module 230 V / 50 Hz / 6 A



KASRO mobile cable drum with 120 m twin cable

Article number: 3010211

- 120 m twin cable
- control and supply of the KASRO working robot pneumatic for milling purposes and the lateral connection systems
- small compact alternative to the KASRO combination cable drum
- suitable for all spatula works (see „ProKASRO Working Robots hydraulic“, p.24)

Technical Data	
Dimensions	Length 800 mm, Width 540 mm, Height 790 mm
Weight	290 kg
Operating media	230 V / 50 Hz / 10 A, compressed-air 2,5 m^3/min 12 bar

KASRO combination cable drum with 100 m or 140 m combination cable

Article number: 6021110 / 6021111

- control and supply of all
- pneumatic KASRO working robots
- Systems for Lateral Intake Rehabilitation
- KASRO spatula robots and the shield injecktion system
- combination cable contains all lines: power lines, control air lines, water line
- robots can also be retracted from the sewer

Available with:

- 100 m combination cable (ø 40 mm)
- optional: bigger version with 140 m combination cable (ø 40 mm)

Technical Data	
Dimensions	Length 1800 mm, Width 680 mm, Height 1220 mm
Weight	500 kg
Operating media	230 V / 50 Hz / 10 A
Outer sheath PUR Kevlar reinforced	

ProKASRO Working Robots pneumatic

KASRO mini swivel-head colour camera

Article number 1024300

Article number: 1024301

halogen camera:

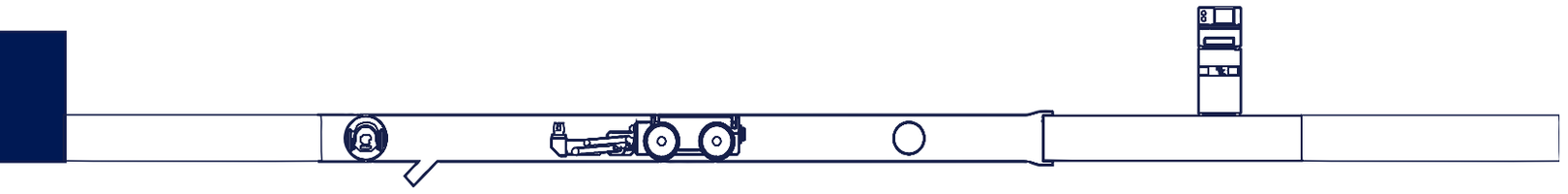
- suitable for KASRO working robot 3.6 and 4.0
- halogen lighting
- larger chassis, positioned on the side
- special feature: focus drive

LED camera: **SELF-CLEANING**

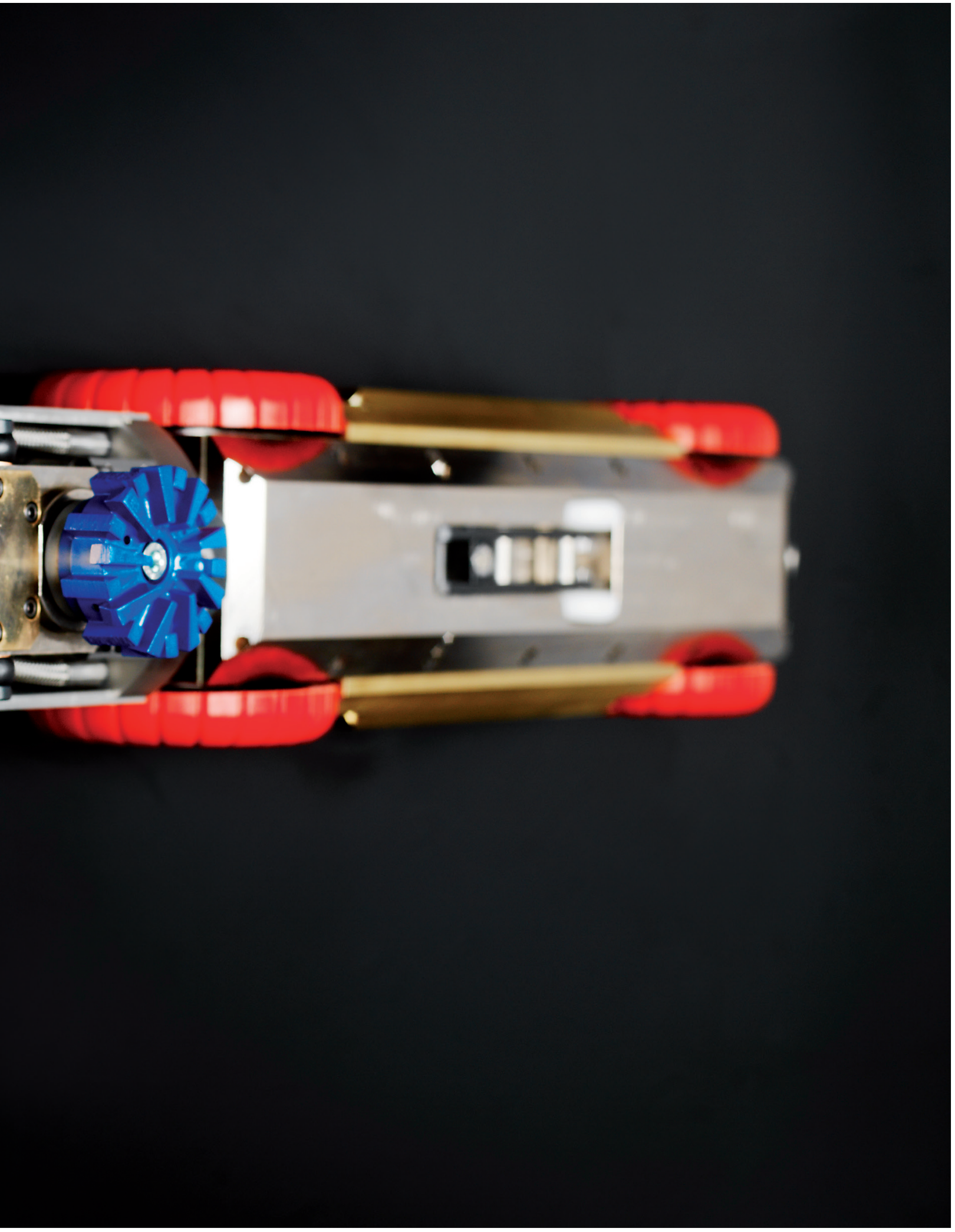
- suitable for all robots
- LED lightning
- smaller chassis, therefore more suitable for smaller pipe diameters
- **Special:** camera is self-cleaning because the glass cylinder rotates separately to the lens

Both cameras are equipped with a rotary drive, hence every desired picture can be observed

Technical Data		
	Halogen camera	LED camera
Dimensions	Length 136 mm Chassis cross-section 87 mm Swivel-head diameter 70 mm	Length 120 mm Chassis cross-section 66 mm Swivel-head diameter 45 mm
Movements	Swivel 340°, focus up to 10 mm	
CCD camera	625 lines	
Objective	53,4°	

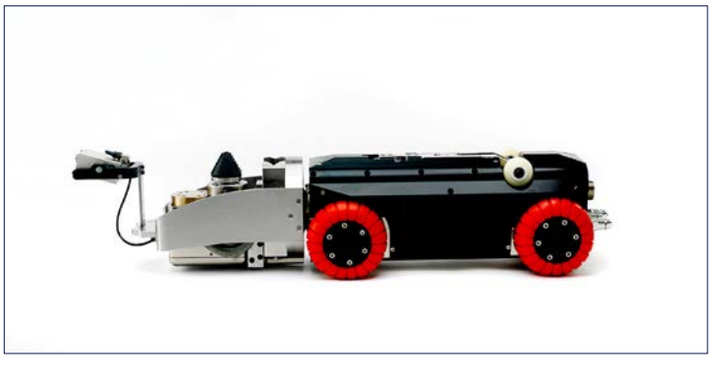


ProKASRO Working Robots hydraulic



ProKASRO Working Robots hydraulic

KASRO Hydraulic milling robot GOLIATH DN 250 - 600



Article number: 5010001

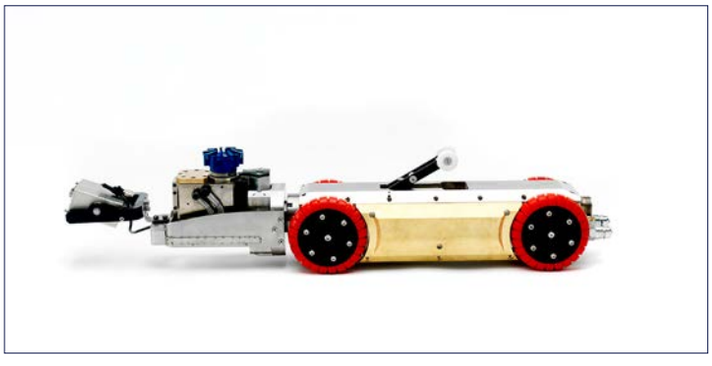
- self-propelled working robot
- electrical and hydraulic powered
- axial movement is performed by the drive unit
- inclusive KASRO miniature pan-head camera with wiper for hydraulic roboter

Optional

- Adaptation to DN 800 is possible (Article number: 5010030)
- Oval profile attachment module to work in oval profiles DN300/450 and DN600/900 (Article number: 5010020)

Technical Data	
Dimensions	Length 830 mm, Width 210 mm, Height 190 mm
Driving speed	0–12 m/min
Movements	Rotation 900°, Lift 110 mm
Weight	80 kg
Operating Media	Oil pressure 150 bar
Motor	5 kW at 3500–4500 1/min milling motor

KASRO Hydraulic milling robot Gretchen DN 150 – 250



Article number: 5010002

- self-propelled working robot
- energy supply results from electrical and hydraulic energy
- axial movement is performed by the drive unit
- inclusive KASRO miniature pan-head camera with wiper for hydraulic roboter

Optional

- Oval profile attachment module to work in oval profiles DN 200/300 and DN 250/375 (Article number: 5010025)

Technical Data	
Dimensions	Length 740 mm, Width 130 mm, Height 112 mm
Driving speed	0–12 m/min
Movements	Rotation ca. 900°, Lift 65 mm
Weight	45 kg
Operating media	Oil pressure 150 bar
Motor	3,5 kW bei 5000–6000 1/min milling motor

KASRO swivel-head colour camera with wiper

Article number: 5014300

- to be mounted on hydraulic driven milling robots
- swivel forward to observe the run-in movement
- swivel backward to observe the milling
- fixed focus
- numerous LEDs around the camera lens ensure sufficient illumination
- wiper in front of the camera lens guarantees an optimal camera image

Technical Data	
Dimensions	Length 122 mm, Width 96 mm, Height 42 mm
Movements	Swivel 300°
Operating media	12 V
Camera	625 TV lines
Objective	78°

ProKASRO Working Robots hydraulic

KASRO base control unit

Article number 1024370

- KASRO base control unit for hydraulic miling robots
- to be installed in hydraulic rehabilitation vehicles with control panel and 15“-TFT-monitors

Expandable with:
- KASRO spatula control unit
- KASRO injection-air control unit

Technical Data	
Dimensions control unit	Length 500 mm, Width 580 mm, Height 780 mm
Dimensions control panel	Length 290 mm, Width 550 mm, Height 170 mm
Weight	105 kg
Operating media	230 V / 50 Hz / 10 A

KASRO hydraulic cable drum

Article number 6031110

- control and supply of the hydraulic milling robots
- installed in the vehicle
- 100 m hose packet
- consistant of:
  - 3 hydraulic lines ø 12 mm
  - 1 electric cable with integrated water line
- robots can be retracted out of the sewer pipe

Technical Data	
Dimensions	Length 2000 mm, Width 800 mm, Height 1450 mm
Weight	630 kg
Operating media	230 V / 50 Hz / 10 A
Combination cable	3 x HD-hose 12 mm, 1 x PUR-hose 8 x 12 mm 22 x 0,75 mm², 2 x 2 x0,5 mm²
Outer sheath PUR Kevlar reinforced	

KASRO spatula cable drum

Article number 6031111

- Extension to the hydraulic cable drum
- 100 m spatula cable

Technical Data	
Dimensions	Length 800 mm, Width 540 mm, Height 790 mm
Weight	190 kg
Operating media	230 V / 50 Hz / 10 A
Combination cable	1 x PUR-hose 8 x 12 mm 22 x 0,75 mm^2, 2 x 2 x 0,5 mm^2

ProKASRO CCTV system

KASRO ProLOOK control unit

Article number: 4050000

- mounted in a robust case
- available installed in a rack or mobile in a case
- 15“ LCD monitor, control desk and data logging inclusive
- Software Digi-CAN Basic
- two joysticks serve as switches
- includes all control elements for sewer inspection
- compatible with the KASRO working robot

Technical Data	
Dimensions control unit	Height 270 mm Width: 500 mm Depth 500 mm
Weight	16 kg
Operating voltage	230 V

KASRO ProLook CCTV inspection system DN 150 to DN 1000 mobile

Article number: 4050060-MOBIL

Camera

- colour CCD camera KZ 90
- aluminium housing with IP68 protection
- pressure resistant up to 1 bar
- efficient and fully reliable
- measuring unit for permanent ovality measuring during CCTV
- integrated laser to measure cracks, pipe irregularities and pipe offsets

Technical Data Camera	
Dimensions	Length: 150 mm Diameter: 90 mm
Weight	1,5 kg
Movements	tilting 270° and rotating 360° endless
Lightning	4 Luxeon LEDs
Colour CCD camera	440.000 pixels 10 x zoom
Cable	300 m up to max. 500 m

Trolley

- 6 x 6 all-wheel drive
- function of self stabilization with a 6 ° tilt
- pressure acquisition up to 1 bar
- compatible with KZ90CB / KZ75CB camera head
- integrated rear view camera
- additional lighting
- transmitter sonde for 33 kHz and 512 Hz
- hooks for save insertion in the manhole

Cable drum

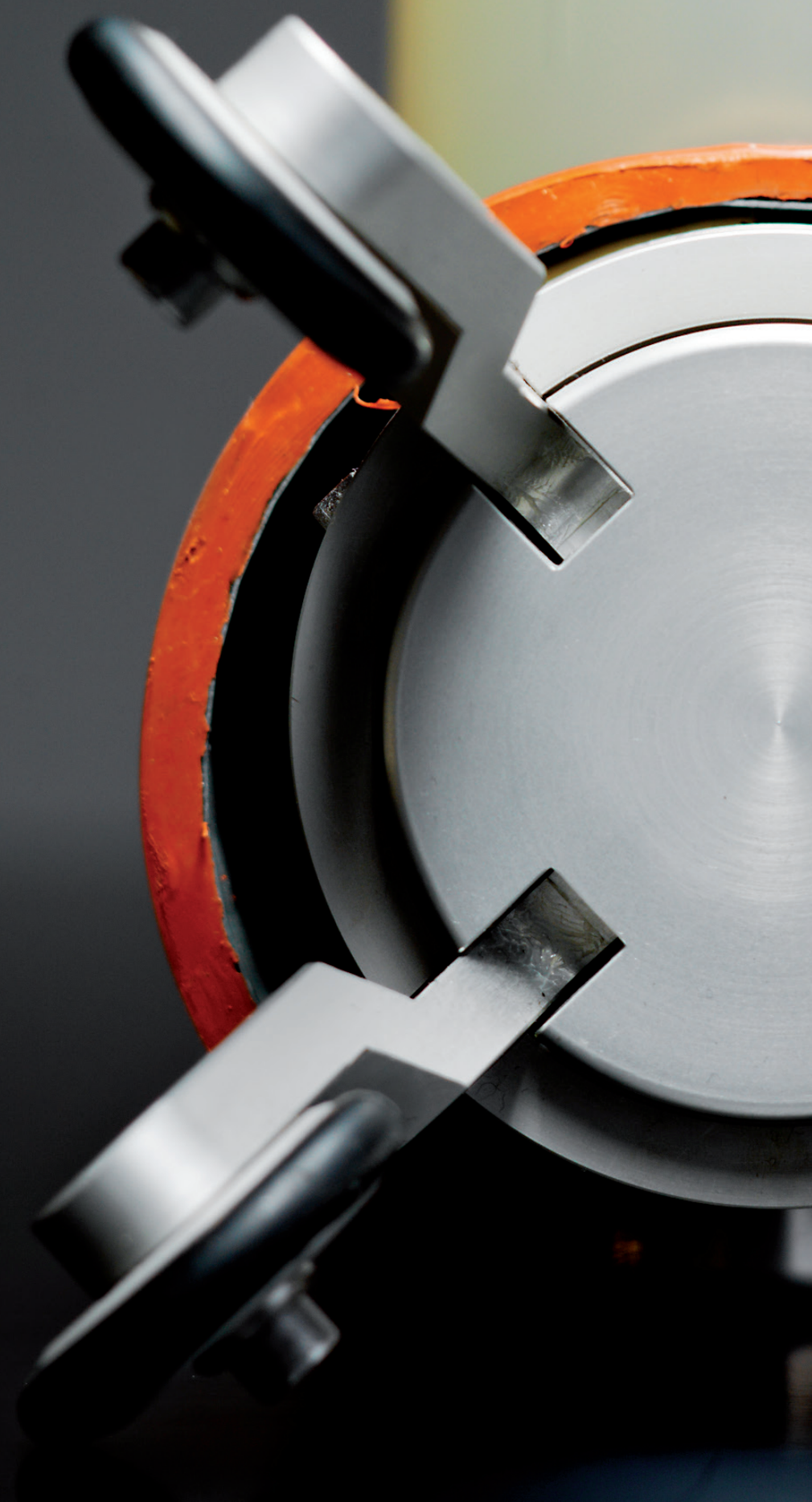
- Automatic motor driven cable reel
- Guiding roll for cable relief
- Meter counter for the length measurement of the coiled-off cable.
- 300m cable (500m as an option)

Technical Data Trolley	
Dimensions	Length 420 mm, Width 83 mm
Weight	12,7 kg
Motor	2 x 100 W
Diameters	DN 150 up to DN 1000

ProKASRO Lateral Intake Rehabilitation

The KASRO lateral intake rehabilitation systems were especially developed for lateral intake rehabilitation of different sizes. They will be positioned with the help of the self-propelled unit, a rotational module and a camera.

The injection sealing system with epoxy resin carries the injection material directly in membrane cartridges. The material´s flow path is very short and can be injected into the damage spot quickly. The material hardens immediately.

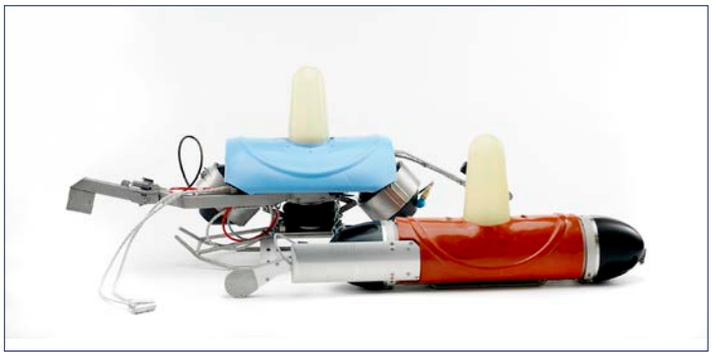


KASRO cap placement system rehabilitates lateral intakes via laminated caps. The caps are impregnated with epoxy resin. They are being inserted in short hats and and put over long hats (1m).
The curing process will be accelerated by a form plate and a balloon heating.

The KASRO 2-component-sealing system can store a big amount of the material. Leaking branch pipes as well as cracks, leaky collars and shards can be injected. The material hardens immediately as well.

ProKASRO Lateral Intake Rehabilitation

KASRO injection sealing system DN 200 - 600



Article number: 1023100

- for rehabilitation of lateral intakes
- with epoxy resin (other material possible)
- injection material is carried within membrane cartridges underneath the form plates
- the pressure of the injection is directly transferred to the damage spot
- the intersection angles and axes are not predetermined due to a side balloon and a collapsible seal on the form plate, which are fully expandable and inflatable with compressed air
- the side balloon can be sucked back behind the form plate
- the electric heating of the balloon and the form plate support the curing of the applied sealing materials
- three cameras: one in front (DN 250 and above!) and one behind the system; one camera in the balloon pot, which shows the user how the branch pipe looks like and how far the material is pressed in

Technical Data	
Dimensions DN200	Length 716 mm (without holding arm), chassis diameter 150 mm, Weight 25 kg
Dimensions DN250-600	Length 550 mm (without holding arm), Weight 15 kg
Flat compressing shield	400 mm x 360 mm
Dimensions balloon	Base diameter 100 mm, Height 203 mm (short conical balloon), 233 mm (long conical balloon), 350 mm (cylinder balloon)
Heating	Shield 250 W, balloon 200 W or 300 W
Cartridge size	DN 200 / DN 250: 2 x 1,5 liters from DN 300: 2 x 2,1 liters

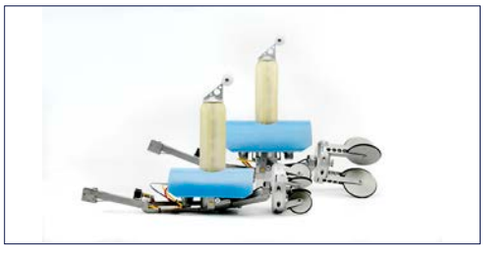
KASRO UV cap placement system DN 200 - 600

Article number: 1023130

- main body to be equipped with silicon packers, which contains lamps
- UV light performance:
- 1 lamp in the balloon 200 W
- 1 lamp under the form plate 250 W
- fast reaction
- silicon packers in the following sizes: DN 200, DN 250, DN 300 - 350, DN 400 - 450, DN 500 - 600
- adaptable to every KASRO-system, with an additional electronic module (Article number: 1023135)

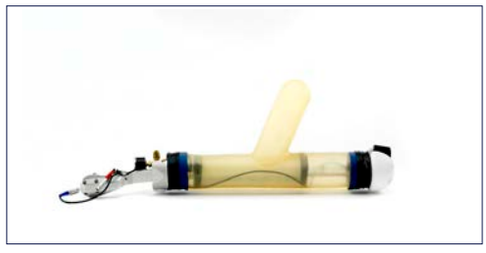
Technical Data	
Dimensions	Length 1500 mm, Width 200 mm, Height 520 mm
Weight	15 kg
Lamp performance	1 x 200 W / 1x 250 W
Silicon packers	DN 200, DN 250, DN 300 - 350, DN 400 -450, DN 500-600

KASRO cap placement system DN 150 - 600



Article number: 1023120

Article number: 1023122



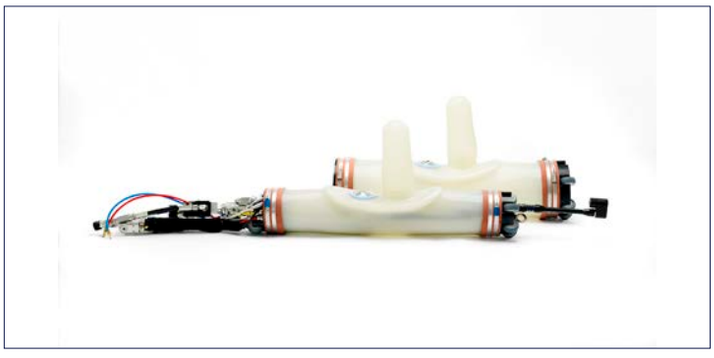
Article number: 1023121

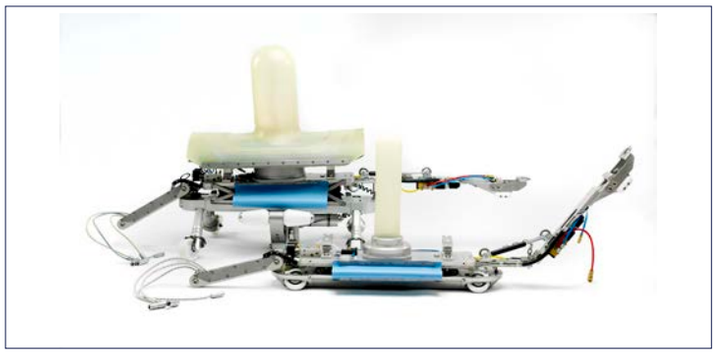
- the intersection angles and axes are not predetermined due to a side balloon and a collapsible seal on the form plate, which are fully expandable and inflatable with compressed air.
- to ensure an easy and non-destructive procedure of the cap placement system in the main sewer, the form plate is inclined to the back and the diameter of the entire device is reduced by means of a compressed air cylinder
- the electric heating of the balloon and the form plate reduce the reaction time of the used resins and adhesives
- the heating energy also reaches the upper areas of the balloon further in the lateral intake
- the various flexible form plates ensure that they optimally adjust to every pipe diameter

Technical Data	
Cap placement system DN 150	
Dimensions	Length (with holding arm) 840 mm, diameter 120 mm
Length cap	150 mm
Weight	5 kg
Heating	300 W, shield and balloon
Special feature	available with front camera
Cap placement system DN 200 – 600	
Dimensions DN 200	Length 580 mm (without holding arm), 725 mm (with holding arm)
Dimensions DN 250 - 600	Length 675 mm (without holding arm), 917 mm (with holding arm)
Weight	15 kg
Surface shield	400 mm x 360 mm
Dimensions balloon	Base diameter 100 mm, Length 350 mm
Heating	Shield 250 W, balloon 300 W
Height cap	300 mm
Material for cap	Epoxy resin (standard)

ProKASRO Lateral Intake Rehabilitation

KASRO 2-component injection sealing system DN 200 - DN 600





Article number: 1023105 / 1023105-200

With the KASRO 2-component injection sealing system, leaking branch pipe joints, as well as cracks, leaky collars and shards can be injected. The injection sealing system consists of a unit for the branch pipe joint sealing and one for the crack and collar injection. The systems are positioned using the KASRO self-propelled unit in connection with the KASRO rotation unit.

- two material tanks, each with 200 l material
  - filling/extraction: by an electronically controlled 2K pump
  - supply in the sewer: 80 m long 2K hose
  - mix: shortly before the material is injected into the leak
  - PU material begins after the injection to react within 2 minutes

- material tanks and hose drum are integrated into an air-conditioning box
  even with varied outside temperatures a constant material temperature will be provided

- the electronic system shows the user all data such as pressure and flow amount visually and acoustically

- how much material was used at which leak can be therefore controlled exactly; if a dysfunction or a mixing error occurs, the system will be stopped automatically

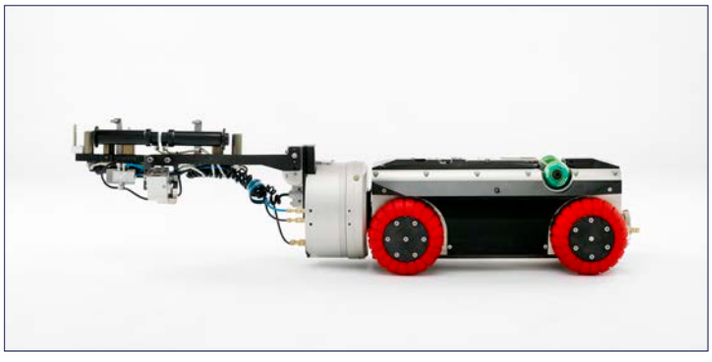
- three cameras in total:
  - one in front and one behind the system
  - one camera in the balloon pot, which shows the user how far the material in the branch pipe is pressed in
  - the operator can control exactly and avoids pressing behind the balloon
  - for the crack, shard and collar injection there is one camera each in front and behind the system and a third one in the packer
  - change between the cameras is possible

- the balloon size is adjusted to the pipe branch diameter
  three available balloon sizes at the moment: (80, 120 and 160 mm diameter) for the branch pipe joints from DN 100 to DN 200
  after the injection the branch pipe is not constricted

Technical Data
2K-Pump
80 m 2K hose on hose drum with material rotary feedthrough
Placement unit with shield balloons for DN 250 – 350 for balloons 80 and 120 mm
Placement unit with shield balloons for DN 400 – 600 for balloons 80, 120 and 160 mm
Packer sets DN 200 - 600 (1 m) for crack, shard and collar injection
Special sizes for packer sets for crack, shard and collar injection are possible!

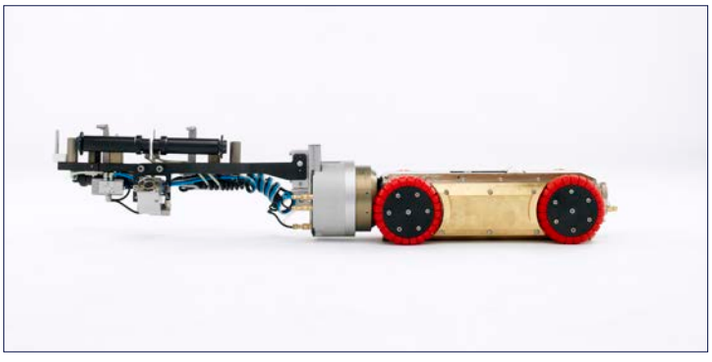
ProKASRO Lateral Intake Rehabilitation

KASRO spatula robot HERCULES DN 250 - 600



Article number: 5010050

KASRO spatula robot Hercules DN 200 - 250

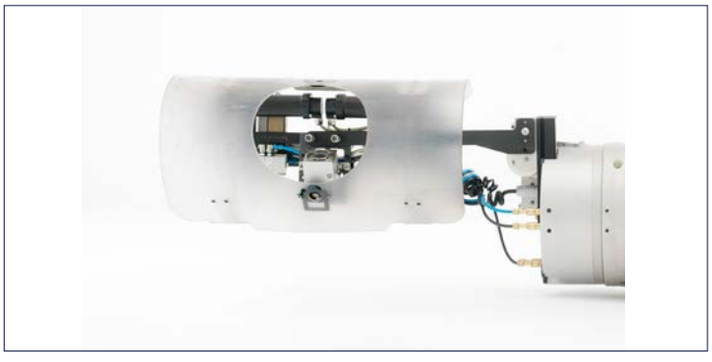


Article number: 5010060

- self-propelled working robot in each diameters
- premixed resin is pressed out a canister by compressed-air to be processed
- seal cracks, fractures, joints or holes
- moves the scraper device to and from the pipe wall via two separately controllable arms
- powered via a 100 m combination cable, consisting of air and electric lines
- the tool head can rotate and the lateral movement is controlled via the drive unit

Technical Data		
	DN 250 - 600	DN 200 - 250
Dimensions	Length 1000 mm Width 230 mm Height 190 mm	Length 800 mm Width 95 mm Height 103 mm
Driving speed	0–10 m/min	
Movements	Rotation 900° Lift: 80 mm	Rotation 900° Lift: 65 mm
Weight	75 kg	50 kg
Operating media	42V DC, compressed-air 8 bar, 1000 l/min	
Tools	for axial, radial and hole filling, balloon placement	
Material	Epoxy resin (standard)	

KASRO shield injection system DN 200 - 600



Article number: 5010055 shield injection system

Article number: 5010085
KASRO cube camera
integrated in the shield injection system

Article number: 5010080
KASRO swivel-head colour camera
to control the spatula process

The shield injection system device can be mounted on:

- the KASRO spatula robot DN 150 - 300
  the KASRO spatula robot DN 300 - 600
  also possible: up to DN 800 and oval profile

- the devices carry a material cartridge (disposable or refillable) with the premixed material
- it is pressed out by a compressed-air cylinder
- the spatula device seals cracks, fractures, joints or holes
- move the scraper device to and from the pipe wall via two separately controllable arms
- the tool head can rotate and the lateral movement is controlled via the drive unit
- with the shield injection system the material can be pressed into the transition area between the lateral intake and the main sewer

Technical Data	
Dimensions	Length 480 mm
Movements	Rotation 540° Lift: 65 mm
Weight	3,6 kg

ProKASRO Lateral Intake Rehabilitation

KASRO rotational module DN 200 - 600

Article number 1025110

The KASRO rotation module is mounted to the front of the drive unit to use the equipment for the lateral intake equipment

Available for:

- DN 200 - 600 to be mounted on the KASRO self-propelled unit DN 200 - 600
- install of the KASRO mini swivel-head colour camera possible

Technical Data	
Dimensions	Length 265 mm, diameter 145 mm
Weight	5,7 kg

KASRO rotational module DN 150 - 400

Article number: 1025111

The KASRO rotation module is mounted to the front of the drive unit to use the equipment for the lateral intake equipment

Available for:

- DN 150 - 400 to be mounted on the KASRO self-propelled unit DN 150
- install of the KASRO mini swivel-head colour camera possible

Technical Data	
Dimensions	Length 264,5 mm, diameter 130 mm
Weight	4,6 kg

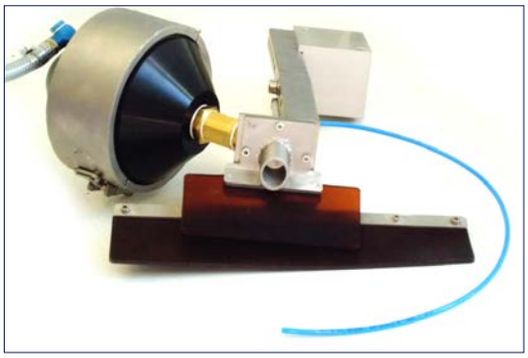
KASRO balloon placement attachment

Article number: 1022100

- placement of pipe sealing plugs
- with compressed-air it can be extended up to two levels to position the pipe sealing plug into the pipe connections
- due to the assembly of the holding rings the 1st and the 2nd level can be blocked, esp. important for small diameters
- mounted on the KASRO working robot instead of the KASRO compressed-air motor

Technical Data	
Dimensions	Length 100 mm, Width 69 mm, Height 160 mm
Weight	2,2 kg
Extension length level 1	69 mm
Extension length level 2	134 mm
suitable for football balloons other adapters upon request	

KASRO priming attachment

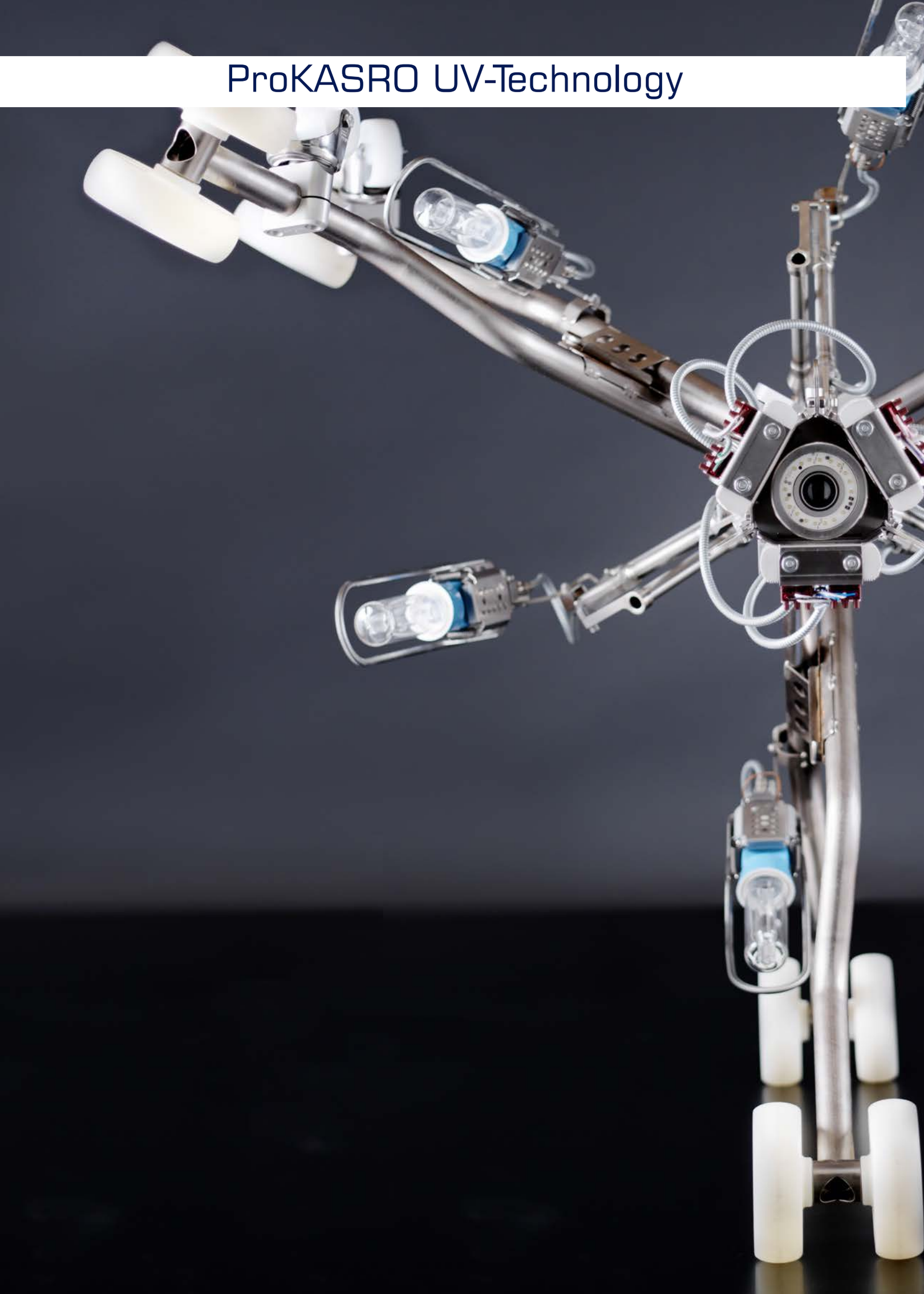


Article number: 1023200

- sealing of cracks in the sewer wall and collars
- scraper applies the priming material to the leak, a second tailing scraper spreads the material smoothly
- mounted on the KASRO working robot instead of the KASRO compressed-air motor, cartridge with the priming material is simply screwed on
- form plates from DN 200 - 600

Technical Data	
Dimensions	Length 180 mm, Width 137 mm, Height 176 mm (without cartridge)
Weight	4,3 kg
Cartridge volume	1 l (2 l possible for larger diameters)

ProKASRO UV-Technology



To operate the installation of CIPP pipe liners in an efficient manner we produce KASRO UV curing systems since 2003. The use of specially designed UV lamps and their shadow free positioning on the UV light core facilitates trouble free liner installations in the sewer from DN 150 up to DN 1600. The process is monitored by the operator via the heat resistant pluggable camera located within the UV light core. Infra red sensors positioned on the UV light core transmit laminate curing temperatures to the operator.

The innovative KASRO UV-Technology provides curing times which set new standards. In the future up to 18,000 W get possible. The new construction of the KASRO cores create the qualification to cure pipe liners beyond diameters of DN 1200 in an efficient and secure way.

ProKASRO UV-Technology

KASRO UV CCU

Article number: 4020004

- DN 150 to DN 1200
- mobile, compact, equipped with four wheels, rehabilitation can be operated within the narrowest streets
- complete control unit above electric driven cable drum
- operation, display, datalogging via 21“ Touchscreen PC
- can be installed in a vehicle
- control of the KASRO light sources:
  - 8 x 400 W
  - 8 x 600 W
  - 8 x 1000 W

Technical Data	
Dimensions	Depth 142 cm + 88 cm Length 70 cm Height 160 cm
Weight	530 kg
Length cable	200 m
Diameters	DN 150 - DN 1200

KASRO UV control unit PROFESSIONAL

Article number: 4020019

- mains adapter for power supply 8 x 400 Watt / 600W / 1000W as well as for 12 x 1000 W light source DN1500
  (automatic switch between the respective UV light sources possible)
- display and recording of the camera image
- WIN TV for video files recording including PC
- entire datalogging of the curing process
- operation is performed using a touch-screen monitor on which all important data is displayed graphically, all measuring data can easily be monitored
- all data and misfunctions can be saved on a PC
- the resulting datalogging of the curing process can be printed after the rehabilitation
- optional: up to **18.000 W**
- Inclusive device for tele maintenance via remote control

Technical Data	
Dimensions control unit	Length 500 mm, Width 1650 mm, Height 1535 mm
Weight	250 kg
Operation voltage	400 V / 50 Hz / 64 A

KASRO UV curing drum PROFESSIONAL

Article number: 4020000 / 4020003

- 200 m curing cable
- optional: 300 m curing cable, cooling system integrated
- installed version in the truck
- due to the mechanical freewheel the cable can easily be removed
- equipped with a screen and control display, to be able to control and monitor the light chain from the drum
- the light chain in the sewer pipe is retracted with the preset speed using the UV curing cable drum
- the speed adjustment ensures that the prescribed curing time is exactly met and logged

Technical Data	
Dimensions	Length 1580 mm, without swivel arm 1160 mm, Width 700 mm, Height 1300 mm
Weight	570 kg
Operating media	400 V / 50 Hz
Curing cable	UV and head resistant self netting PUR outer sheath, Kevlar reinforced 5 x 2 x 0.25 mm^2 Teflon isolated, 10 x 0.6 mm^2, 24 x 1.5 mm^2, 1x Teflon coax

KASRO UV system light mobile DN 150 - 250

Article number: 4020300

- Control unit for the KASRO UV light train 6 x 400 W
- control unit: installed in flightcase
  - manually starts the lamps
  - no data logging
  - temperature display

Optional
- data display and recording

Technical Data	
Dimensions	Length 52,5 cm Width 54 cm Height 40,5 cm
Weight	60 kg

ProKASRO UV-Technology

KASRO UV light source chain DN 150 - 500

Article number: 4020050

- 8 x 400 W, 8 x 600 W
- with the respective wheel extension the light chain can be adjusted to the rehabilitating diameter
- can also be enlarged to oval profile for DN 300 / 450 to DN 400 / 600
- 16 “crosses” are mounted on the circular enclosure of the individual elements of the light train

Technical Data	
Dimensions	Length approx.. 3000 mm, pluggable wheel extensions
Performance	8 UV-lamps à 400 W pluggable in ceramic frame
Sensors	3 piece variable IR sensors for recording the laminate temperature

KASRO UV light core DN 550 - 1200

Article number: 4020070

- 2 x 4 x 1000 W
- centralisation of the light core within the sewer is achieved by electric motors altering the expansion which is observed by a camera within the packer
- the centralisation process is monitored by the operator via the UV and heat resistant pluggable camera located within the UV light core
- automatic shutdown prevents over expansion of the UV light core once the preset diameter is reached
- to reduce curing times, three UV light cores can be connected together by using of specially designed wheelsets
- expansion of the lamp performance to 12.000 W is possible
- for oval profiles
  - DN 500 / DN 750
  - DN 600 / DN 900
  - DN 800 / DN 1200
- the two bottom feet are changed by longer feet
- therefore sufficient UV light is emitted to the bottom part of the liner

Technical Data	
Dimensions	Retracted diameter 360 mm, Length 970 mm
Diameters	DN 550 - 1200
Weight	25 kg each core
Centralisation	electric
Power	4 UV lamps, 1000 W each, pluggable in ceramic frame
Dimensions oval profile	Heigth min 320 mm, max 925 mm Width min 300 mm, max 610 mm

KASRO UV light core
DN 1000 - 1600

Article number: 4020085

- 2 x 6 x 1000 W
- for oval profiles
  - DN 800 / DN 1200
  - DN 900 / DN 1350
- to reduce curing times up to 3 UV light cores can be connected
- expansion of the lamp performance to 18.000 W is possible

Plug connector for the UV curing cable:

- stainless steel chassis of the UV plug connector is dismountable
- short-term repairs are possible on-site

Technical Data	
Dimensions	Length with wheels: 1250mm Length without wheels: 1100 mm
Diameter	closed core: 560mm maximum diameter: 1500mm
Wheight	30 kg
UV lamp performance	6 x 1000 W

ProKASRO UV-Technology

KASRO UV camera

Article number: 4020080

- heat-resistant
- can be mounted to any UV light source
- illumination via an LED lighting ring
- with colored picture

Technical Data	
Dimensions	Length 105 mm, chassis diameter front 80 mm, chassis diameter plug side 50 mm
Operating media	30 V / 12 V

KASRO UV packer set DN 150 - 500

Article number: 4020055

- with the help of UV packers the inliners are integrated and inflated
- packers are seperately available in 5 x 2 different sizes for DN 150 - 500
- appropriate air couplings to connect a compactor or compressor hose are on the packers
- the divided Venturi nozzle is in the removable cap of the packer, throuch which the curing cable is pulled during the rehabilitation

Technical Data	
Packer DN 150	125 mm outer diameter length without connections 305 mm
Packer DN 200	150 mm outer diameter length without connections 305 mm
Packer DN 300	250 mm outer diameter length without connections 316 mm
Packer DN 400	345 mm outer diameter length without connections 316 mm
Packer DN 500	440 mm outer diameter length without connections 316 mm
Total weight packer set	ca. 130 kg
Air connections	B75, 3/4“-jaw clutch, NW 7,2 for pressure control

KASRO UV packer set DN 600 - 800

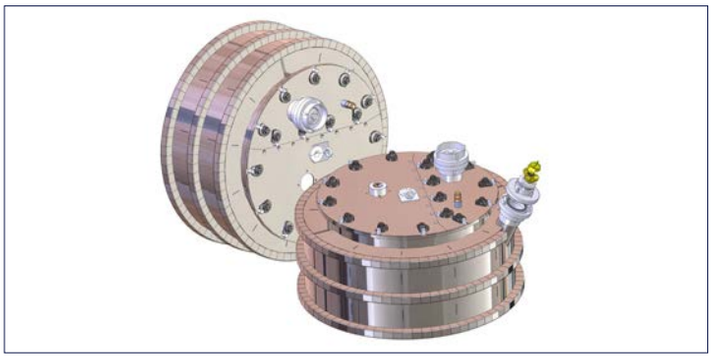
Article number: 4020056

- with the help of UV packers the inliners are integrated and inflated
- packers are seperately available in 2 x 2 different sizes for DN 600 - 800
- appropriate air couplings to connect a compactor or compressor hose are on the packers
- the divided Venturi nozzle is in the removable cap of the packer, throuch which the curing cable is pulled during the rehabilitation
- packers are separable to make the installation in the manhole easier

Optional:
- packer camera

Technical Data	
Dimensions for DN 600	515 mm outer diameter length without connections 360 mm
Weight	22,5 kg / piece
Dimensions for DN 800	640 mm outer diameter length without connections 316 mm
Weight	36 kg / peace
Air connections	B75, 3/4“-jaw clutch, NW 7,2 for pressure control

KASRO UV packer DN 1000



Artikelnummer: 4020109

- with the help of UV packers the inliners are integrated and inflated
- the packer set consists of 2 packers
- appropriate air couplings to connect a compactor or compressor hose are on the packers
- the divided Venturi nozzle is in the removable cap of the packer, through which the curing cable is pulled during the rehabilitation
- packers are separable to make the installation in the manhole easier

Optional:
- packer camera

Technical Data	
Packer DN 1000	820 mm outer diameter length without connections 380 mm
Weight	70 kg / piece
Luftanschlüsse	B75, 3/4“-jaw clutch, NW 7,2 for pressure control

ProKASRO UV-Technology

KASRO UV packer set DN 1200 - 1600

Article number: 4020058 / 4020059

- with the help of UV packers the inliners are integrated and inflated
- the packer set consists of 2 packers
- appropriate air couplings to connect a compactor or compressor hose are on the packers
- the divided Venturi nozzle is in the removable cap of the packer, through which the curing cable is pulled during the rehabilitation
- Packer DN 1600 with integrated cable routing
- packers are separable to make the installation in the manhole easier

Optional:
- packer camera

Technical Data	
Packer DN1200	900 mm outer diameter length without connections 315 mm
Weight	84,5 kg / piece
Packer DN1600	1260 mm outer diameter, length without cable routing 350 mm
Weight	106 kg / piece
Air connections	B75, 3/4``-jaw clutch, NW7,2 for pressure control

KASRO UV packer set oval profile DN 400 / 600 - 1200 / 1800

Article number: 4020105 / 4020106 / 4020107 / 4020062 / 4020108 / 4020110

- with the help of UV packers the inliners are integrated and inflated
- the packer set consists of 2 packers
- appropriate air couplings to connect a compactor or compressor hose are on the packers
- the divided Venturi nozzle is in the removable cap of the packer, through which the curing cable is pulled during the rehabilitation

Technical Data	
Packer DN 400 / 600	360 mm width, 527 mm height, length 360 mm
Weight	22,5 kg / piece
Packer DN 500 / 750	420 mm width, 660 mm height, length 360 mm
Weight	28,5 kg / piece
Packer DN 600 / 900	520 mm width, 800 mm height, length 360 mm
Weight	41 kg / piece
Packer DN 800 / 1200	710 mm width, 1060 mm height, length 400 mm
Weight	85 kg / piece
Packer DN 900 / 1350	850 mm width, 1110 mm height, length 410 mm
Weight	95 kg / piece
Packer DN 1200 / 1800	1080 mm width, 1410 mm height, lenght 410 mm
Weight	140 kg / piece
Air connections	B75, 3/4``-jaw clutch, NW7,2 for pressure control

KASRO Back-Eye camera for DN 550 - 1200

Article number: 4020096

- back-eye camera at UV light core DN 550-1200, mountable (Article number: 4020070)
- back and front visibility

Technical Data	
Dimensions camera	80 mm length, 60 mm width, 70 mm height
Weight	0,4 kg

KASRO Back-Eye camera from DN 300

Article number: 4020095

- back-eye camera for UV light sources (from DN 300), mountable at the connector (cable side)
- back and front visibility

Technical Data	
Dimensions camera	70 mm length, 90 mm width, 100 mm height
Dimensions Steckermodul	150 mm length, 90 mm width, 70 mm height
Gewicht Gesamt	1,9 kg

The rehabilitation of house connections is always a big challenge for sewer rehabilitation companies. In many cases jobsite access is situated in hard to reach areas, such as cel-lars, backyards.

Preparation of the liner and opening of the laterals with the help of the KASRO smART house connection robot.

Curing of fibre glass liners with the newly developed KASRO UV light source chain.

ProKASRO bend capable

ProKASRO bend capable

KASRO smART house connection robot DN 100 – 200 with KASRO control unit

Article number: 2025000

- extremely bend capable
- compact, light

- Functions: with joysticks
  - milling head extand / retract, swivel up and down
  - Robot tension front / back: hydraulic; 540° rotation / milling: electric
- motor: electric
- three cameras
  - two wide-angle cameras ahead
  - one camera behind
  - LED lights

control unit for the KASRO smART house connection robot

- display of
  - oil pressure / temperature
  - rotation, torque e-milling on the monitor
- small air compressor to clean the camera, cooling of the milling motor

Technical Data	
Dimensions	Milling module: 175 mm x 82 mm Spinning module: 140 mm x 82 mm In total: 610 mm x diameter 82 mm
Cable	20 m push hose
Weight	3,4 kg
Voltage	220 V
Motor	Electric milling motor 250 W / 10.000 U/min

Technical data smART control unit	
Dimensions	Height 380 mm Width 500 mm Depth 300 mm
Weight	19 kg
Dimensions complete unit	Height 1300 mm Width 630 mm Depth 850 mm
Weight complete unit	100 kg
Volume	65 dB
Changes without prior notice	

KASRO UV light source chain system IKARUS

Article number: 2025004

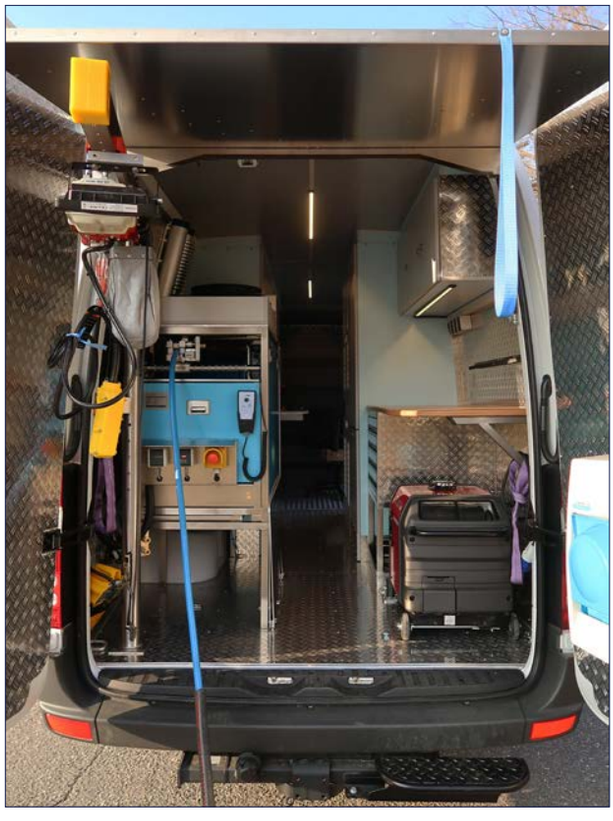
- bend capable
- 3 x 200 W DN 100
- 3 x 200 W DN 150
- with 30 m push cable with reel and camera WITHOUT rotary feedthrough
- UV control unit with data logging and video recorder
- adjustable cable traction unit
- Two sensors measure the reaction temperature of the resin and the air temperature inside the liner
- Protocol: Air pressure inside the liner, throughput speed, lamp function, video picture.

Technical Data	
Dimensions	Total length 30 m, Length Segment 110 cm, Diameter DN 100; 70 mm Diameter DN 150; 103 mm
Weight	2 x 30 kg
Performance	3 x 200 W UV-lamps
Bend capabilities	For bends up to 90°
Equipment	Feed unit, control unit

Technical Data control unit	
Dimensions	Length: 525 mm Width: 400 mm Height: 540 mm
Weight	30 kg

ProKASRO Rehabilitation Vehicles

3.5 t rehabilitation vehicle for KASRO electric working robots



Article number: 8001030 / 8001035

Advantage: maximum permitted laden mass of only 3,5 t

- can be driven with a normal driver´s license
- rehabilitation can be operated within the narrowest streets
- no noise pollution for the environment

- cost-efficient version of a robot rehabilitation vehicle
- DN 150 - 600, optional: carriage up to DN 800, oval profiles
- power supply via battery packs with inverter
- additional feature: KASRO robots and cameras with pressure

Technical Data	
Vehicle	Self-propelled work machine
Dimensions vehicle	Length 5787 mm, Width 1933 mm, Height 2750 mm (for example: Sprinter)
Dimensions box	Length 3311 mm, Width 1780 mm, Height 1840 mm (for example: Sprinter)
Total weight	3490 kg
Power generator	inverter 7 kW
Water tank	80-130 l
Vehicle not supplied	

5 t rehabilitation vehicle for KASRO hydraulic working robots with trailer

Article number: 8001045

Hydraulic working robots in a 5 t vehicle with trailer for spatula works

- rehabilitation can be operated within the narrowest streets

- cost-efficient version of a robot rehabilitation vehicle
- DN 150 - 600, optional: carriage up to DN 800, oval profiles
- installed equipment within the trailer: conditioning cabinet, generator, work bench, mixing machine

Technical Data	
Vehicle	Self-propelled work machine
Dimensions vehicle	Length 7345 mm, Width 1993 mm, Height 3055 mm (for example: Sprinter)
Dimensions box	Length 4700 mm, Width 1780 mm, Height 1940 mm (for example: Sprinter)
Dimensions trailer	Length 3500 mm, Width 2100 mm, Height 2100 mm
Total weight	5000 kg, trailer: 3490 kg
Power supply	aggregate within the trailer, hydraulic pump 150 bar, 17 l/min
Water tank	200 l
Vehicle not supplied	

ProKASRO Rehabilitation Vehicles

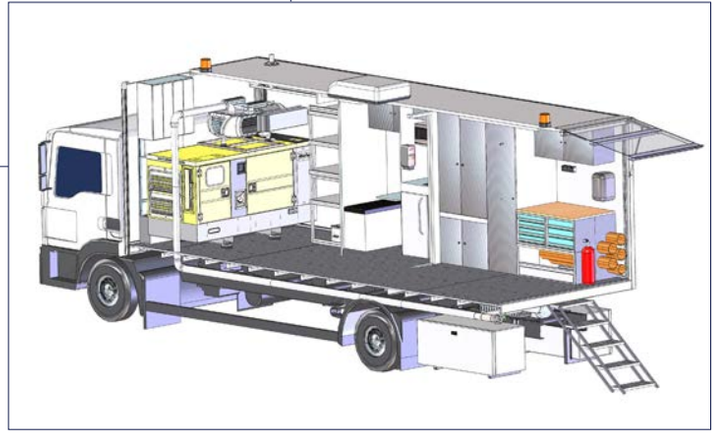
12 -18t EXPERT rehabilitation vehicle for KASRO UV Technology stationary

Article number 8004053

- **Overall rehabilitation with UV-Technology gets possible!**
  operation of all KASRO UV light source chains and cores from 8 x 400 W up to 18 x 1000 W for the diameters DN 150 to DN 1600
- Installed equipment: customised built-in cupboards, seats with desk, work bench incl. tools, control panel, water tank with pump, lamps, sockets, air conditioner and battery buffered auxiliary heater
- kitchen with refrigerator, microwave, wash basin (available separately)
- Power generator and air blower are available separately (depends on the rehabilitation equipment) are installed in a seperate machine room (directly behind the cab), accessible through 2 doors left and right
- additional feature: KASRO robots and cameras with pressure

Technical Data (Vehicle not supplied)	
Vehicle	Self-propelled work machine
Dimensions Container	Length 7000 mm, Width 2480 mm, Height 2300 mm (varies)
Power generator	40 kVA or 65 kVA
Total weight	variable weight
Water tank	80-130 l
Air blower	800 mbar /6m³ / min or 1100 mbar / 8m³ / min

12 - 18 t EXPERT rehabilitation vehicle for KASRO UV Technology usable mobile



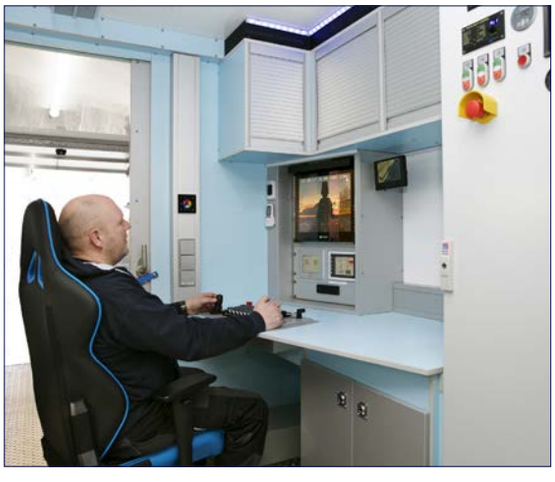
Article number: 8004053

- **Overall rehabilitation with UV-Technology gets possible!**
  operation of all KASRO UV light source chains and cores from 8 x 400 W up to 8 x 1000 W for the diameters DN 150 to DN 1600
- with removable CCU
- Installed equipment: customised built-in cupboards, seats with desk, work bench incl. tools, control panel, water tank with pump, lamps, sockets, air conditioner and battery buffered auxiliary heater
- kitchen with refrigerator, microwave, wash basin (available separately)
- Power generator and air blower are available separately are installed in a seperate machine room (directly behind the cab), accessible through 2 doors left and right
- additional feature: KASRO robots and cameras with pressure

Technical Data (Vehicle not supplied)	
Vehicle	Self-propelled work machine
Dimensions Container	Length 6500 mm, Width 2480 mm, Height 2150 mm (varies)
Power generator	40 kVA
Total weight	variable weight
Water tank	80-130 l
Air compressor	800 mbar / 6 m^3 / min

ProKASRO Rehabilitation Vehicles

12 - 18 t EXPERT rehabilitation vehicle for KASRO electric working robots



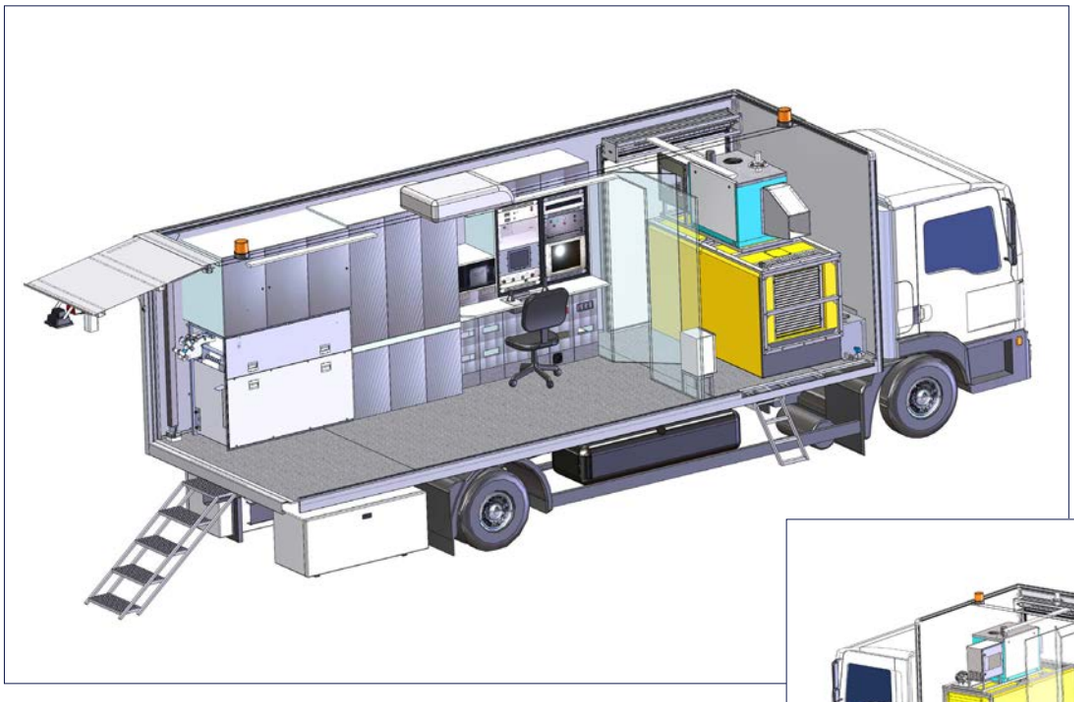
Article number 8004066

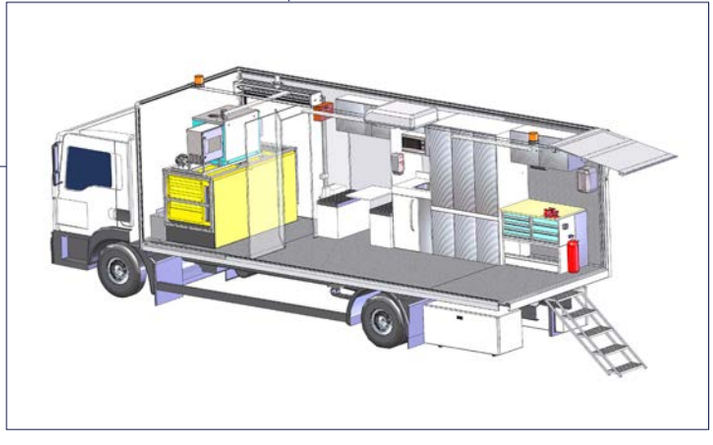
- **Overall rehabilitation gets possible!**
  operation of ALL electric working robots for milling and ALL systems for lateral intake rehabilitation (for injection, cap placement)

- The installed equipment includes customised built-in cupboards, seats with desk, work bench incl. tools, control panel, water tank with pump, lamps, sockets, air conditioner and battery buffered auxiliary heater
- kitchen with refrigerator, microwave and wash basin (available separately)
- The power supply results by the inverter 3000 VA which is supplied via the battery packs with 1.040 Ah / 12 V and a super-silent Diesel generator 8000 VA (directly behind the cab)
- additional feature: KASRO robots and cameras with pressure

Technical Data (Vehicle not supplied)	
Vehicle	Self-propelled work machine
Dimensions Container	Length 7000 mm, Width 2480 mm, Height 2150 mm
Power generator	12 kVA
Total weight	variable weight
Water tank	190 l
Air compressor	10 bar, 0,3 m^3/min

12 - 18 t EXPERT rehabilitation vehicle for KASRO pneumatic working robots





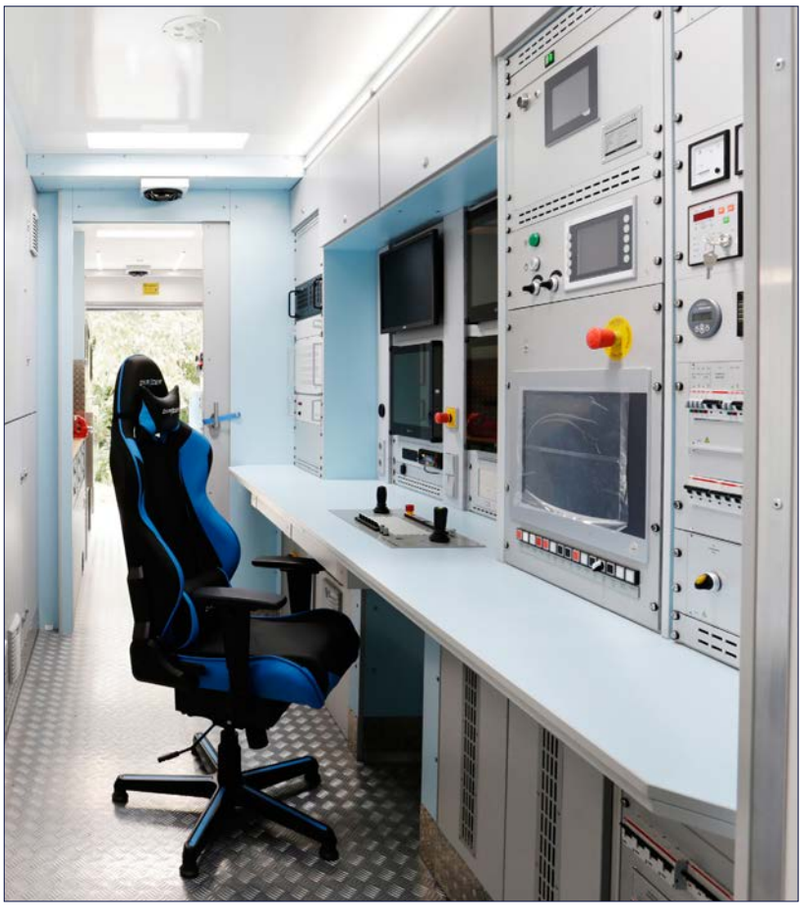
Article number 8004085

- **Overall rehabilitation gets possible!**
  operation of ALL pneumatic working robots (for milling, filling) and ALL systems for lateral intake rehabilitation (for injection, cap placement)
  Installed equipment: custom-made cupboards, seat bench with table and swivel chair, operator station, work bench including high quality set of tools, water tank with pump, fuel tank with fuel indicator, air conditioning, battery-buffered auxiliary heating, lamps, sockets, cooling box, basic equipment
- kitchen with refrigerator, microwave and wash basin (available separately)
- preparation for the installation of a generator, batteries and compressor in a separate machine room incl. rain flap and retractable stairs with an unilateral handrail to enter at the rear of the vehicle
- additional feature: KASRO robots and cameras with pressure

Technical Data (Vehicle not supplied)	
Vehicle	Self-propelled work machine
Dimensions Container	Length 7000 mm, Width 2480 mm, Height 2150 mm
Power generator	30 kVA
Total weight	variable weight
Water tank	190 l
Air compressor	10 bar, 2,5 m^3/min

ProKASRO Rehabilitation Vehicles

SPECIAL rehabilitation vehicle upgrade for 18 t truck, including KASRO electric robot systems, a UV curing installation and a TV inspection installation

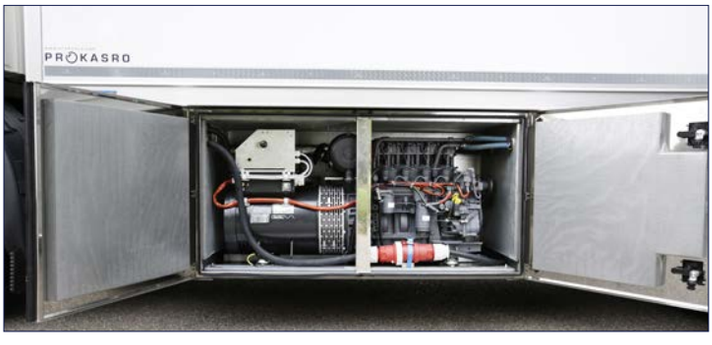


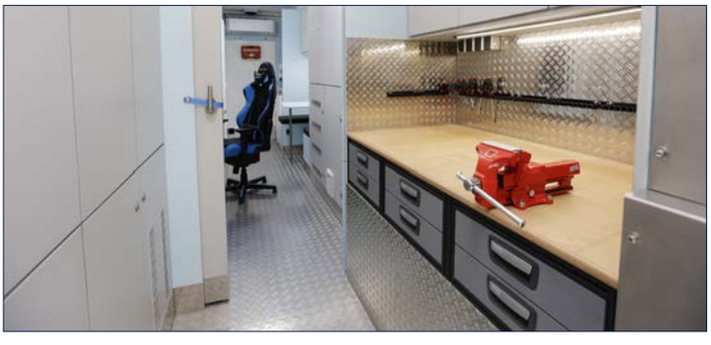
- **Overall rehabilitation gets possible!**

- operation of all KASRO UV light source chains and cores from 8 x 400 / 600 W, 8 x 1000 W, 12 x 1000 W for the diameters DN 150 to DN 1600
- Operation of all electric working robots for milling AR 4.0, AR 3.6, AR 1.7 for the diameters DN 130 - DN 800
- TV inspections for the diameters DN 150 - DN 800
- The installed equipment includes customised built-in cupboards, seats with desk, work bench incl. tools, water tank with pump, lamps, sockets, air conditioner and battery buffered auxiliary heater, kitchen with refrigerator, microwave and wash basin
- The power generator and the blower are mounted outside under the truck's loading platform resulting in a significant noise reduction inside the vehicle
- The KASRO electric cutters and the inspection system can also work supplied by the battery pack

Feel free to contact us with your individual vehicle request!

SPECIAL rehabilitation vehicle upgrade for 18 t truck, including KASRO electric robot systems, a UV curing installation and a TV inspection installation





Technical Data (Vehicle not supplied)	
Vehicle	Self-propelled work machine
Dimensions Container	Length 8000 mm, Width 2400 mm, Height 2400 mm
Power generator	60 kVA
Total weight	variable weight
Water tank	210 l
Blower	DTLF 500; 18,5 Kw; 1,1 bar
Compressor	10 bar, 311 l / min
Battery Pack	4 x 24 V - 1040 AH

The ProKASRO Team is looking forward to plan your system!

ProKASRO Rehabilitation Vehicles International

KASRO 20“-Container - Example KASRO UV-Technology

Article number: 8004050

- **Optimal Solution for the international deployment!**
  Ready-to-connect system internationally normed: transportable via any ship or truck

- Equipment according to individual application: all applications can be installed
- Power generator is installed in a seperate machine room accessible through 2 roller doors left and right
- Container 20“ with CSC admission

Technical Data	
Vehicle	Self-propelled work machine
Dimensions Container	Length 5890 mm, Width 2350 mm, Height 2372 mm
Power generator	40 - 65 kVA
Water tank	95 l
This Container (exemplary) was built after individual customer requests.	

KASRO Flightcase

KASRO control unit for electric miling robots

KASRO UV control unit

KASRO UV light core 2 x 6 x 1000 W

- **Ready-to-connect system for a safe worldwide transport without any problems**

- All components of this system are packed in separate Flightcases
- UV light trains, robots, wheel sets and further equipment can be packed and transported easily
- control unit within the Flightcase can be installed into a vehicle
- control unit within the Flightcase can also be used mobile

Technical Data	
Dimensions	variable
Weight	variable

Technical Data reserved

Images are examples -

contain partly more than the scope of delivery

Notes: