

# POWERFUL SEWER REHABILITATION TECHNOLOGIES & SOLUTIONS

Sewer Robotics is the proud manufacturer of this modular, single system solution that features a multi functional crawler and various job-specific modules for underground pipe inspection, cleaning, cutting and rehabilitation.

One system, highly effective and cost-efficient, removing root intrusions, cutting protruding taps, reinstating lateral connections, installing spot repair systems and removing heavy grease, overpoured concrete and years of calcium and scale build-up from 150 – 1000mm (6-40") underground pipes and service lateral connections.

This brochure will introduce the different applications, system configurations and components of the Sewer Robotics' system.



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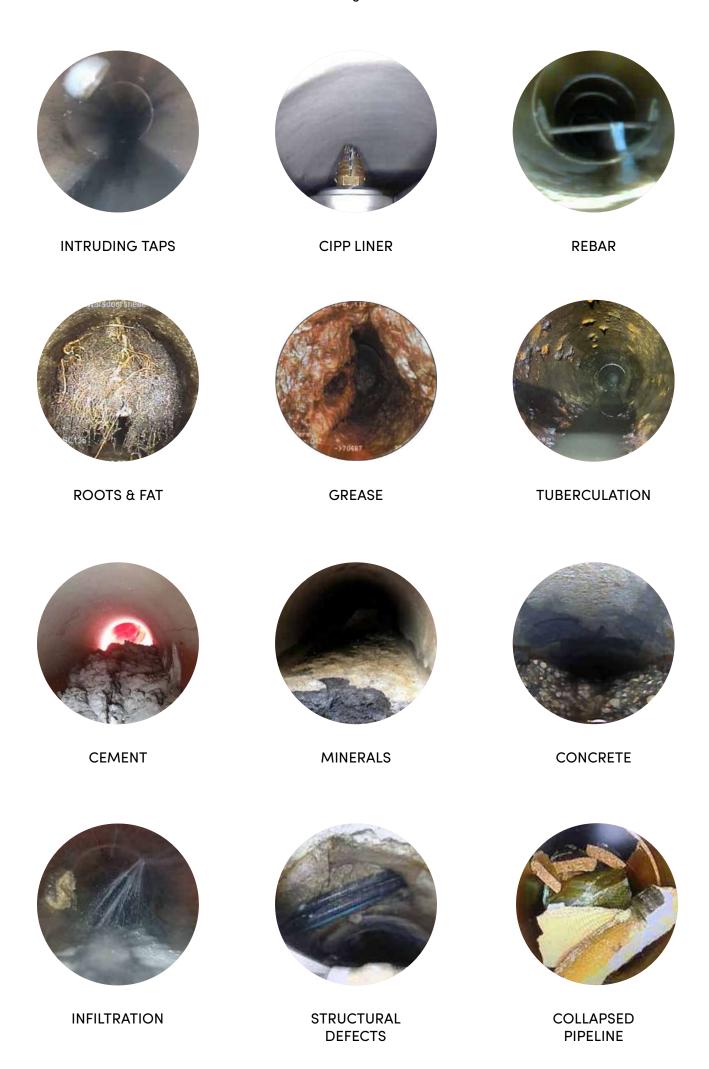
**Sewer Analytics** 

ID-TEC, PRO-JETTING & Divewise

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# ONE MULTIFUNCTIONAL CRAWLER WITH VARIOUS JOB-SPECIFIC MODULES FOR MULTIPLE APPLICATIONS



REINSTATEMENT CUTTER

# THE SR-SERIES

# THE ULTIMATE TOOL FOR PIPELINE MAINTENANCE



PRECISION WATER JET

OUR ROBOTS ARE EASILY TRANSFORMED FROM A POWERFUL REINSTATEMENT CUTTER TO A WATER JET CUTTER, JUST BY SWAPPING MODULES IN LESS THAN 60 SECONDS.



SCAN FOR VIDEO



# **UHP PRECISION WATER JET CUTTING HOW DOES IT WORK?**



SCAN FOR VIDEO

Precision water jet cutting applies a continuous adjustable high pressure/ low volume water blast from a special designed crawler, with precisely steerable nozzle and CCTV camera module, for controlled removal of deposits settled and solid obstructions from within 150 -1000mm (6-40") pipes and their lateral connections.



#### **PROS**

- EYES ON THE JOB
- **POWERFUL**
- **CONTROLLED**
- **VERSATILE**

Eyes on the job and continuous adjustment of water pressure, angle with the pipe and distance to the material enable the operator to achieve the breakdown and elimination of various obstructions without adding damage to the pipe structure.





# WATER JET CUTTING ROBOTS



**SCAN FOR VIDEO** 

Nearly two decades of UHP water jet cutting experience can be recognized in the designs and features of our precise and reliable directional cutting robots that are easy to operate and easy to service.

Made from durable stainless steel and with enough freedom of movement to apply a powerful water blast, directly to the material, under the right angle and with constant camera supervision in pipelines of varying diameters.

	WJ125	WJ 180 WJ 200		WJ250	
Pipe ø	150 – 600mm (6-24")	200 – 500mm (8-20")	250 - 750mm (10-30")	300 – 1000mm (12 –40")	
Max. pressure	3000bar (43,500psi)	3000bar (43,500psi)	3000bar (43,500psi)	3000bar (43,500psi)	
Ram lift	210mm (8")	N/A	270mm (11")	520mm (20")	
Nozzle tilt	110°	90°	100°	90°	
Compatible Crawler	R125	R160	R160	R250	
More info	P50	P55	P56	P59	

"IN 30 MINUTES MORE MATERIAL WAS REMOVED THAN WHAT 5 OTHER COMPANIES HAD REMOVED TOGETHER IN 3 WEEKS"

# "TARGET THE SPECIAL JOBS WITH HIGH RATES & LOW COMPETITION"

#### **DURABLE STAINLESS BODY**

Without delicate exterior parts and with a diameter of only 100mm (4").

Its durable and short design provides ease of deployment from tight manholes and sufficient clearance to reach far inside pipes.



#### **ADJUSTABLE SPEEDS**

Of the electric movements (driving and rotating) allow operators to drive to the job fast. Then reduce the speed to maximize precision.

#### TWIST-AND-LOCK MECHANISM

Convert the UHP water jet cutter into a powerful lateral reinstatement cutter- or CCTV inspection robot within 60 seconds. The available, purpose-build, modules widen the robot's application range.

#### PRO'S

VERSATILE – convert into a reinstatement cutter in just 60 seconds

POWER & PRECISION – to remove FOG, roots, cement, calcium & concrete

WIDE SCOPE OF USE – from 150 – 600mm (6-24")

EASY SERVICEABLE – with personal assistance and clever maintenance kits

RELIABLE – build tough, from durable materials

ACCESSIBLE PARTS – reasonably priced parts ,shipped the same day

#### **GREAT VISIBILITY**

A wide-angle camera with continuously adjustable LED lighting is placed directly behind the cutter and easily cleaned with the on-demand lens cleaner.



#### POWER FROM THE RIGHT ANGLE

Water jet cutting uses a targeted high pressure water blast, precisely applied and continuously monitored.

To remove roots, cement, grout, concrete, failed liners and mineral deposits without adding damage to the host pipe.

#### **HYDRO-PNEUMATIC ACTUATORS**

The 210mm (8") ram lift and 110° nozzle tilt provide a very wide application scope from 150 – 600mm ("6–24") and are realized by hydro-pneumatic actuators.

These in-house developed, linear actuators are operated with compressed air and have an enclosed hydraulic circuit to combine the strength and precision of hydraulic cylinders with the convenience and serviceability of pneumatic actuators without hydraulics inside the robot.



SEWER ROBOTICS was the first company to introduce UHP water jet cutting from a specialized crawler to remove solid obstructions and deposits settled. Our customers worldwide have removed many different materials and saved lots of pipes from replacement over the course of more than 2 decades Some examples:



Removal of aggregate concrete from a 200mm (8") Vitrified Clay Pipe with the WJ125 water jet at 1500bar (21,750psi).



The WJ125 utilizing 1000 bar (14,500psi) to remove tuberculation from this 300mm (12") pipe, as if it was butter.



The capacity of this pipe was restored in a few hours, using 1000bar (14,500psi) to remove the mineral build-up.



# 18+ YEARS OF UHP WATER JET CUTTING







A huge amount of natural wax got into the sewer and storm lines after a factory fire. The obstructions were removed rapidly with the 500 bar (7,250psi) water jet.



This calcium carbonate had built up in a tunnel over many years. It took various night shifts and 2500 bar (36,250psi) to remove it.



The calcium in this coated VCP 300mm (12") sewer pipe blocked more than half of the pipe and was broken into smaller pieces with the WJ180 at 1000bar (7,250psi).



## LOMBARDY, IT



After various failed attempts of different nozzles and cutters, Sewer Robotics was invited to remove the concrete that has been blocking this 400mm (16") sewer main line for the past 10 years.

The R125 robot with WJ125 water jet module was used at 1000bar (14,450psi) to cut the concrete into small pieces. In the first few hours, the flow was restored by removing about a meter (3FT) of 100% blockage, exposing cross-bores as the possible entry point of the deposits. The remaining concrete on the bottom was removed after.

#### SWISS ALPS, CH



Limescale, the crystallized mineral deposits often found in sewer pipelines of hard water areas, has been successfully removed from multiple sewer pipelines in the Swiss Alps with the Sewer Robotics system.

The calcium carbonate had build up over many years and required up to 2500bar (36,250psi) to remove.

#### LONDON UNDERGROUND, UK



The Sewer Robotics mobile cable reel and control unit were successfully used to remove over 5m (15ft) of concrete from an antique 500mm (20") brick storm water pipeline inside one of London's oldest subway stations.

The truck with installed water supply and remotely controlled, diesel engine driven, 2800bar (40.600PSI) high pressure pump was parked outside, with hoses laid out over a total length of 320 meters (1,000ft) from pump to robot.

#### LOS ANGELES, USA



Concrete slurry with aggregate was poured into 250mm, 375mm and 450mm (10", 15", 18") sewer mainlines after boring into an unmarked sewer line during ground stabilization work in a coastal condo development near Los Angeles. The solid obstructions were blocking the sewage flow from a nearby residential area towards the treatment plant and threatening the progress of the construction project.

With eyes on the 1000bar (14,500psi) water blast, the operators cut their way through the concrete, breaking it into smaller pieces. It took multiple weeks to clear all concrete blockages from the three main sewer lines and saved the building project millions of dollars as construction could continue.

# "CUTTING POWER & PRECISE CONTROLS FOR FAST REINSTATEMENT AND SMOOTH CUTS"



# GRINDING, MILLING AND CUTTING



SCAN FOR VIDEO

Sewer Robotics reinstatement cutters feature precise movements and can be used with water driven cutter motors for extremely powerful and fast reinstatement or cutting intruding taps of any material.

Designed durable and user-friendly, with maximum clearance and a wide scope of applications, easy to service, and easy deployment from tight manholes.



	HA 125	HA 195	HA250	
Pipe ø	150 – 500mm (6–20")	250 - 750mm (10-30")	250 – 1000mm (10 –40")	
Compatible cutter motor	Water, Pneumatic, Electric	Water, Pneumatic, Electric	Water, Pneumatic, Electric	
Ram lift	205mm (8")	270mm (11")	325mm (13")	
Cutter pivot	90°	90°	90°	
Lens cleaner	Compressed air Water	Water On-demand Wiper	Water On-demand Wiper	
Compatible Crawler	R125	R160	R250	
More info	P51	P57	P60	







CIPP LATERAL REINSTATEMENT

# "THE HA 125, CONTRACTORS" PREFERRED CUTTER"

#### **DURABLE STAINLESS BODY**

Without delicate exterior parts and with a diameter of only 100mm (4").

Its durable and short design provides ease of deployment from tight manholes and sufficient clearance to reach far inside pipes.



#### **ADJUSTABLE SPEEDS**

Of the electric movements (driving and rotating) allow operators to drive to the job fast. Then reduce the speed to maximize precision.

#### TWIST-AND-LOCK MECHANISM

Convert the reinstatement cutter into a UHP Water jet cutting– or CCTV inspection robot within 60 seconds.

The available, purpose-build, modules widen the robot's application range, while UHP water jet cutting provides access to a niche market with high rates and low competition.

#### PRO'S

**VERSATILE** – to target the 'special' well-paid jobs

POWER & PRECISION – get a quality job done fast

**WIDE SCOPE OF USE** – from 150 – 500mm (6-20")

EASY SERVICEABLE – with personal assistance and clever maintenance kits

**RELIABLE** – build tough, from durable materials

ACCESSIBLE PARTS – reasonably priced parts, shipped the same day

## GREAT VISIBILITY

A wide-angle camera with continuously adjustable LED lighting is placed directly behind the cutter and easily cleaned with the on-demand lens cleaner.

#### **POWER**

The powerful WM300 water hydraulic cutter motor cuts rapidly through cast iron, concrete and CIPP liner material and leaves a smooth cut.

After removing the cutter motor, an (UV) spot repair packer can be attached via a "puck" coupling.

#### HYDRO-PNEUMATIC ACTUATORS

The 205mm (8") ram lift and 90° cutter motor pivot provide a very wide application scope from 150 – 500mm ("6–20") and are realized by hydro-pneumatic actuators.

These in-house developed, linear actuators are operated with compressed air and have an enclosed hydraulic circuit to combine the strength and precision of hydraulic cylinders with the convenience and serviceability of pneumatic actuators without hydraulics inside the robot.

# WATER, AIR, OR ELECTRIC CUTTING?

Although most contractors appreciate the added power, low maintenance costs and easy upgrading to water jet cutting, there might be jobs where a water supply is not desired or silence more appreciated.

SEWER ROBOTICS cutters can be used with powerful water driven, pneumatic or silent electric cutter motors.



DRIVE	MOTOR	CUTTER	BENEFITS
Water	WM300 WM500	HA125 HA195 HA250	+ Extreme power  + Low maintenance costs  + Upgrade to water jet cutting
Air	PM300 PM500	HA125 HA195 HA250	+ No water supply required
Flectric	EM300 EM500	HA125 HA195 HA250	+ Single cable + Silent



CCTV mainline (pre- and post) inspections without the requirement for an additional CCTV inspection robot system on site? The R125 and R160 crawlers are compatible with the CAMTRONICS ZRK70 HD Pan & Tilt inspection camera for High-Definition pre- and post inspections.

This CCTV inspection module feature a pan & tilt camera and a pressure adjustable air coupling at the front, operated from the control unit to connect with most available spot repair packers in the market.

#### PRO'S

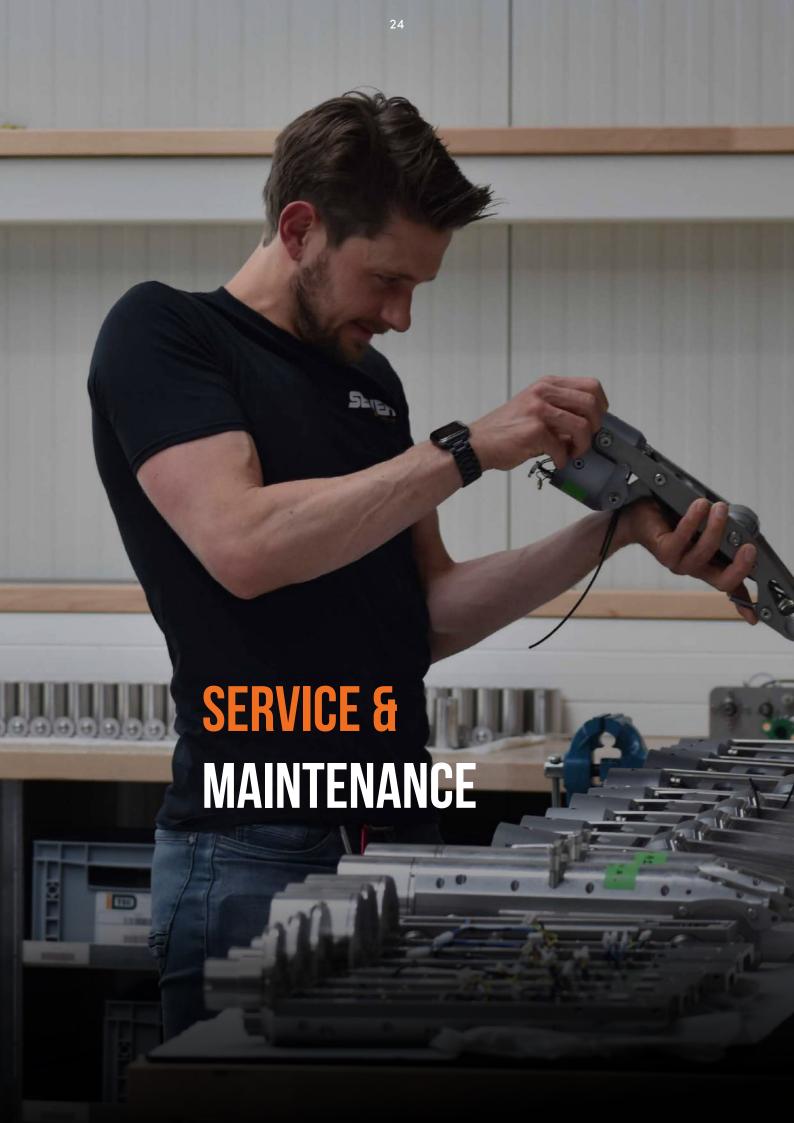
- Compatible with the same robot that is used for grinding and water jetting
- Compatible with WINCAN, POSM, SCS & SEWER ANALYTICS WEB
- Automatic web synchronization
- Auto-horizon adjustment
- Single button joint inspection
- Air coupling for spot repair packers
- Camera compatible with push cable for inspection of 4" (100mm) pipeline



CAM125 > P49 150-375mm (6-15") CAM160 > P54 150-375mm (6-15")



UV Patching > P62 150- 400mm (6-16")



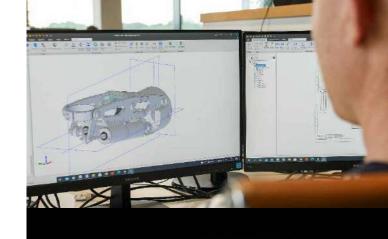
## **EASY SERVICE** AT FAIR COSTS

Our equipment is built as tough as can be, with a slim, stainless-steel body and without delicate external parts, wiring and cables.

But as we know, anything can get broken in this industry and home-owners need to be able to use their toilets at the end of the day.

Therefore, we design our equipment so that it is easy to service, complete with service kits and training.

Our spare parts are reasonably priced and shipped the same day (if ordered before noon). Factory repairs are usually shipped back within 48 hours from arrival at our factory. And, we have loaner equipment available (also for when your project requires an additional or different robot or module than what you have already).



#### PRO'S

- PERSONAL ASSISTANCE
- SELF REPAIR POSSIBILITY
- **REMOTE SYSTEM DIAL-IN**
- FAIR PRICED PARTS
- WEBSHOP FOR PARTS & ACCESSORIES
- LOANER EQUIPMENT



CABLE REPAIR **VIDEO** 



**CABLE REPAIR** SFT

**CUTTER MOTOR** 

#### **CABLE**

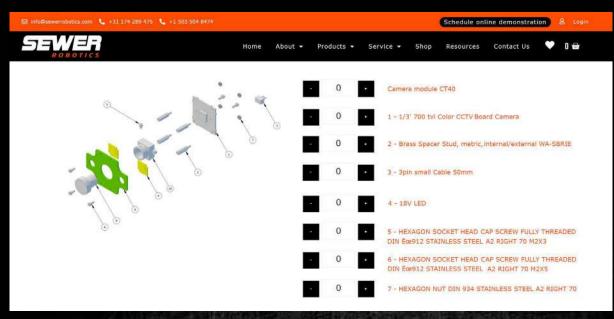
#### RETERMINATION

The robot's strain relief is designed so, that a single operator can do a cable retermination in the field within 90 minutes with our cable repair kit and instruction video.

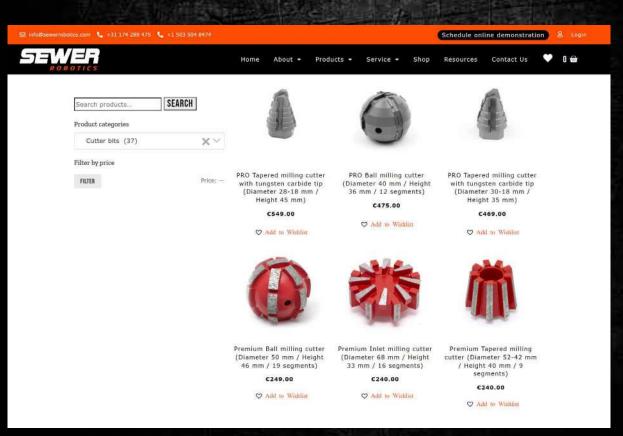
#### **CUTTER**

#### **MOTOR REBUILD**

When our cutter motors lose power after long and intense usage, they do not need to be exchanged. Instead, the ceramic bearings of the cutter motor can be replaced within 15 minutes in the field.



#### SPARE PARTS



#### **ACCESSORIES**





# WHAT PRESSURE DO YOU NEED?

Continuous pressure adjustment of Sewer Robotics high pressure units allow the operator to adapt immediately to different materials and ever changing conditions from the control unit.

High pressure units are available with a maximum pressure of:

- 500BAR (7,250PSI)
- 1000BAR (14,500PSI)
- 1500BAR (21,750PSI)
- 3000BAR (43,600PSI)

# GETTING THE JOB DONE REQUIRES THE RIGHT WATER PRESSURE

APPLICATION	MATERIAL	REQUIRED MAX. WATER PRESSURE		
REINSTATEMENT, Cutting & Grinding	CIPP LINER, PVC, BRICK, VITRIFIED CLAY, CONCRETE, CAST IRON, & STAINLESS STEEL	500 BAR (7,250PSI)		
PRECISION WATER JET CUTTING	ROOTS & GREASE	500 BAR (7,250PSI)		
PRECISION WATER JET CUTTING	CEMENT, CORROSION, SCALE, GROUT & CIPP LINER	500 — 1500 BAR (7,250-21,750PSI)		
PRECISION WATER JET CUTTING	CALCIUM, CONCRETE AND OTHER EXTREMELY HARD MATERIALS	1500 — 3000 BAR (21,750-43,500PSI)		



## HIGH PRESSURE UNITS

SEWER ROBOTICS high-pressure units are available with maximum pressures ranging from 500bar (7,250psi) to 3000bar (43,500psi) and can be driven by a combustion engine, electric motor or the vehicle's engine via the Power Take Off (PTO).

#### **DIGITAL CONTROLS**

SEWER ROBOTICS high pressure units are built with digital controls and sensors for continuous pressure adjustments and immediate pump operation without leaving the robot controls.

Digital pressure reading can be used for training and reporting.



PUMP CONTROL SOFTWARE

#### PRO'S

- FUEL-EFFICIENT
- IN CONTROL WITHOUT HAVING TO LEAVE THE CONTROL UNIT
- CONTINUOUS ADJUSTMENT OF PRESSURE TO ADAPT TO DIFFERENT MATERIALS AND EVER-CHANGING CONDITIONS
- ALL IMPORTANT OPERATING DATA DIGITAL & AT A GLANCE

# PETROL, DIESEL

## **OR PTO PUMP**

SEWER ROBOTICS (Ultra) high pressure units are available for a wide variety of applications and at different investment costs.



HDMP30-1000-13 PRO CART



HDMP30-1000-13 UNDERCARRIAGE BOX



### **COMBUSTION (HDM)**

#### **HIGH-PRESSURE UNIT**

The combustion engine driven highpressure unit features a Diesel or Petrol motor to drive the pump.

#### PRO'S

- Stand-alone
- Compact
- Sound-proof
- Diesel emission: Up to Tier 4 final & Stage V



HDMD37 — HDMD54 CANOPY



HDMD-P150 - 2800BAR (40,600PSI)

## **AVAILABLE HIGH-PRESSURE UNITS**

			MEDICAL PROPERTY.	Market Colonial Inc.	SELLING WATER CO.	
HP-UNIT	TYPE (S)	PRESSURE/ FLOW	DRIVE	WEIGHT	DIMENSIONS LXWXH	VEHICLE GVWR
HDMP500-15	Cart / Under carriage box	500bar (7,250psi) 15LPM (4.Ogpm)	Petrol engine	220kg (4841bs)	1064x500x1125mm (32x20x42")	>3500kg (7,7151bs)
HDMD19-500-19	PRO Cart / Under carriage box	500bar (7,250psi) 15LPM (4.Ogpm)	Diesel Engine (TIER4 / stage V)	340kg (750lbs)	1200x750x900mm (47x30x35")	>3500kg (7,7151bs)
HDMD19-700-12	PRO Cart / Under carriage box	700bar (10,150psi) 12LPM (3.2gpm)	Diesel Engine (TIER4 / stage V)	340kg (750lbs)	1200x750x900mm (47x30x35")	>3500kg (7,7151bs)
HDMP30-750-18	PRO Cart / Under carriage box	750bar (10,878psi) 18LPM (4.8gpm)	Petrol Engine	250kg (5501bs)	1200x750x900mm (47x30x35")	>3500kg (7,7151bs)
HDMP30-1000-11	PRO Cart / Under carriage box	1000bar (14,500psi) 11LPM (3.0gpm)	Petrol Engine	250kg (5501bs)	1200x750x900mm (47x30x35")	>3500kg (7,7151bs)
HDMD37-1000-19	Canopy	IOOObar (14,500psi) 19LPM (5.0gpm)	Diesel Engine (TIER4 / stage V)	975kg (2,150lbs)	1810x860x1150mm (71x34x45")	>12000kg (26,4501bs)
HDPT037-1000-19	Under carriage box	1000bar (14,500psi) 19LPM (5.0gpm)	PTO Direct	250kg (5,50lbs)	Installed under chassis	>5000kg (>11,000lbs)
HDMD54-1500-19	Canopy / Trailer	1500bar (21,750psi) 19LPM (5.0gpm)	Diesel engine (TIER4 / stage V)	975kg (2,1501bs)	1810x860x1150mm (71x34x45")	>12000kg (>26,4501bs)
HDPTO54-1500-19	Under carriage box	1500bar (21,750psi) 19LPM (5.0gpm)	Truck PTO Hydraulic	975kg (2,1501bs)	Installed under chassis	>8000kg (>17,6001bs)
HDPTO-P150-2800-24	РТО	2800 bar (40,600psi) 24LPM (6.3gpm)	Truck PTO Direct	IOOOkg (2,2051bs)	Installed on chassis	>16000kg (>35,270bs)
HDMD-P150-2800-24	Canopy / Trailer	2800 bar (40,600psi) 24LPM (6.3gpm)	Diesel Engine (Stage V)	2100kg (4,6291bs)	3006x1083x1833MM (118X43X72")	>16000kg (>35,2701bs)
HDMD-P200-2800-29	Canopy / Trailer	2800 bar (40,600psi) 29LPM (7.5gpm)	Diesel Engine (Stage V)	2500kg (5,5101bs)	3006x1083x1833MM (118X43X72")	>16000kg (>35,270bs)

#### **MOBILE**

#### **CONFIGURATION**



SCAN FOR VIDEO

This economic mobile system configuration is compatible with all SEWER ROBOTICS CRAWLERS and job-specific modules for Electric cutting, CCTV Inspection and UV spot repair.

This configuration is easily upgraded for UHP water jet cutting by adding a high pressure unit and second reel with high pressure hose.

The cable– and hose reels have a small footprint for easement work and installation into any type of vehicle. This control system and reel can be used with PRO–JETTING's tank cleaning– and industrial robots.



HH100 HYBRID CABLE REEL AND CP3DP MOBILE CONTROL UNIT WITH HA195 ELECTRIC CUTTER, UVP125 UV PACKER AND HA125 ELECTRIC CUTTER

#### **CP3DP SUITCASE CONTROL UNIT**

PC : 15.6" (1.920 x 1.080) Touch Screen Panel

Joysticks : Dual, 6-axis, responsive joysticks

■ Interfaces : Robot power supply, communication interface & video interface

■ Camera : Photo and video capturing with text overlay

Power : 100-230V, 50-60Hz

■ Dimensions : 540x410x225mm (21.3x16.1x8.7") – closed

■ Weight : 18kg (40lbs)

#### HH 100 CABLE & HOSE REELS

Max. lengths : 120M (400ft)

Max. pressure : 1500bar (21,750psi)

Dimensions : 620x440x620mm (24.4x17.3x24.4") each – Stackable

Weight: 80kg (175lbs) each

Compatible Robots : R125, R160, R250, R600, TWK300E

## "SMALL INVESTMENT, GREAT PERFORMANCE"



MOBILE CONFIGURATION INSIDE ALUMINUM SHIPPING BOX WITH HA125 CUTTER AND 1000BAR (14,500PSI) POWERPACK

#### PRO'S

- COST-EFFICIENT
- POWERFUL WITH ACCESS TO NICHE MARKETS
- RUGGED SUITCASE CONTROL UNIT
- CABLE AND HOSE REELS 120M (400FT)
- COMPATIBLE WITH ALL ROBOTS & MODULES
- SMALL FOOTPRINT
- MINIMAL INVESTMENT

#### **EASY-TO-USE SOFTWARE**

#### AND ERGONOMIC CONTROLS

The ID-RIS operating software runs from a touch screen computer, displays live video and system data and allows remote control and continuous pressure adjustment of the pump.

All movements of the crawler, job specific modules and reels are operated from two programmable 6-axis joysticks.



#### PRO'S

- CONTINUOUS PRESSURE ADJUSTMENT FROM CONTROL UNIT
- TWO 6-AXIS JOYSTICKS
- CUSTOMIZABLE JOYSTICK SETTINGS
- PHOTO- AND VIDEO CAPTURING
- COMPATIBLE WITH NASSCO PACP CERTIFIED POSM AND WINCAN SOFTWARE

# HYBRID CABLE & HIGH PRESSURE HOSE REELS

MH200R - MH200HD

The MH200R and MH200HD Hybrid Cable and High Pressure Hose Reels are installed in heavy duty stainless steel frames with standard 150m (500') and maximum 250m (820') cable and high pressure hose. The reels feature cross-lead spindles, adjustable speeds, distance measurement and can be controlled individual or simultaneous from the reels, the control unit or a remote control.

#### **HYBRID CABLE REEL**

The Kevlar protected hybrid cable holds wiring for power, video and communication around an air supply hose for the pneumatic movements and positive pressure inside the transporter and modules.

#### HIGH PRESSURE HOSE REFI

The high-pressure hose supplies water under pressure for precision water jet cutting and reinstatement cutting operations. The MH200HD has an UHP swivel for pressures up to 1500bar (21,750psi).

\*Individual Ultra high pressure hose segments and reels are available for pressures up to 3000bar (43,500psi).



#### **SPECIFICATIONS**

Standard length

■ Max. length

■ Max. pressure

Dimensions

Weight

: 150m (500')

: 250m (820')

: 1500bar (21,750psi)\*

: 820x500x1020mm

(33x20x40") each : 220kg (485lbs) each

#### **FEATURES**

- Controlled from reels, control unit or remote control
- Distance measurement
- Cross lead spindle
- Adjustable speeds
- Torque regulated synchronization
- Loop detection sensor
- Stainless steel frame
- Double wired remote control with emergency stop

### **VAN & TRAILER**





**SCAN** FOR VIDEO

This plug-and-play skid offers a convenient and affordable solution for integrating SEWER ROBOTICS' lateral reinstatement and precision jet cutting robot systems in vans, trailers and other vehicles.

With a 1000L (264gal) water tank, 3000W power inverter, operator desk with flush mounted joysticks and 27" touch screen PC, rear view camera, and robot storage drawer, it only needs to be anchored inside the vehicle and connected to the vehicle's batteries.



SKID WITH HA195 CUTTER ROBOT

#### **SPECIFICATIONS**

Compatible reels

Control unit

Compatible vehicles

Water supply

Power supply

Dimensions

Weight

Vehicle GVWR

Compatible Robots

: HH100 - 120m (400')

: MH200 - 250m (820')

: Flush mounted CP3D joystick panel & 27" Touchscreen PC

: Vans, trailers and trucks

: 1000L (264gal) or more

: 3000watt 100-230V, 50-60Hz inverter (12-24VDC)

: D2400xW1400xH1620mm (94.5x55.2x64")

: 340kg (750lbs) (empty tank)

: 3500kg (7,716lbs) with empty tank - or heavier

: R125, R160, R250, R600, TWK300E

#### **FEATURES**

- CCTV Vicinity camera system
- Robot storage drawer
- Electric pre-pressure pump

# "FROM OUR SHOP, STRAIGHT TO YOUR JOB"



#### PRO'S

- PLUG-AND-PLAY
- CONVENIENT OPERATOR DESK
- **27" TOUCH SCREEN PC**
- 1000L (264GAL) WATER SUPPLY
- ROBOT STORAGE DRAWER
- COMPATIBLE REELS
  - : HH100 120M (400')
  - : MH200 250M (820')



SKID CONTROL SIDE FROM SIDE ACCESS DOOR



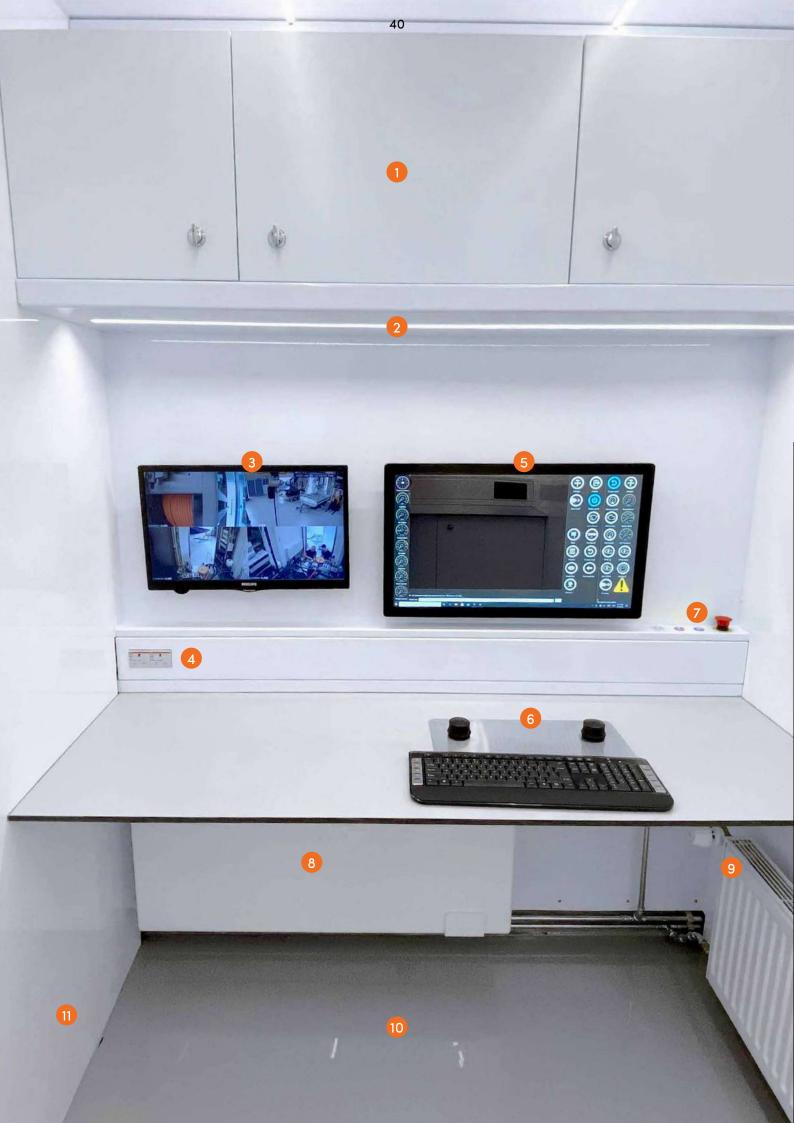
### SPECIAL PURPOSE VEHICLE

Sewer Robotics box installations have everything exactly at the right place. Reels, robot storage and a workbench in the equipment compartment. Convenient touch screen controls and customizable joysticks, cabinetry with sufficient storage in a laboratory alike control studio and a powerful high-pressure unit with water- and power supplies in the engine room.

## **EQUIPMENT COMPARTMENT**

- 1. BEACONS OR STROBE LIGHTS
- 2. WORK LIGHT
- 3. REAR VIEW CAMERA
- 4. RETRACTABLE WATER & AIR REELS WITH CLEANING GUNS
- 5. JIB CRANE WITH ELECTRIC HOIST
- 6. LED LIGHTING
- 7. ADDITIONAL MONITOR
- 8. HYBRID CABLE REEL
- 9. HIGH-PRESSURE HOSE REEL
- **10. ROBOT STORAGE DRAWERS**
- **11. HEATING RADIATOR**
- 12. SLIDING DOOR TO ACCESS OPERATOR STUDIO
- **13. CLEAN WHITE WALL LINING**
- **14. HAND SANITIZER**
- **15. WORKBENCH WITH POWER RECEPTACLES**
- **16. TOOLS & EQUIPMENT STORAGE**
- 17. COATED FLOOR
- **18. STEP BUMPER**
- **19. UNDER CARRIAGE STORAGE BOXES**

YOUR CUSTOM REQUIREMENTS





# **OPERATOR STUDIO**

- 1. CABINETRY
- 2. LED LIGHTING
- **3.** CCTV VICINITY CAMERA SYSTEM
- 4. POWER RECEPTABLES
- 5. 27" TOUCH SCREEN PC CONTROL UNIT
- **6.** OPERATOR DESK WITH FLUSH MOUNTED JOYSTICKS
- 7. EMERGENCY STOP, LIGHTING AND SYSTEM POWER BUTTONS
- 8. AIR CONDITIONER
- 9. HEATING RADIATOR
- **10.** COATED FLOOR
- 11. CLEAN WHITE WALL LINING YOUR CUSTOM REQUIREMENTS



# **ENGINE ROOM**

- SIDE ACCESS DOOR
- CABINETRY
- LED LIGHTING
- HIGH-PRESSURE UNIT
- WATER SUPPLY TANK & FILTERS
- POWER SUPPLIES
- CLOSED CIRCUIT RADIATOR HEATING SYSTEM WITH THERMOSTAT
- AIR COMPRESSOR YOUR CUSTOM REQUIREMENTS



## **BOX INSTALLATION**

Sewer Robotics box installations are built in our factory, with all bells and whistles, to meet our quality standards and your (custom) requirements.

Such box integrated system is easily shipped inside a container and installed on a suitable chassis anywhere in the world.









### **JETTING**

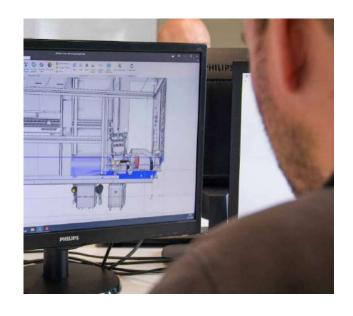
### **CAPACITY**

By adding a jetting pump with hydraulic reel, the same precision cutting vehicle and crew can flush removed materials from the obstruction back to the manhole to increase daily production without requiring an additional jetting truck on site.

The jetting pump and hose reel can be driven by the same engine or PTO that drives the Ultra High Pressure pump.

# CUSTOM IS OUR SPECIALTY

We understand the importance to stand out from competition and invite you to share your ideas and custom requirements, so that our engineers can make your ideal equipment or vehicle integration reality.





# PACKER CONTROLS

A third joystick and pneumatic (top-hat) packer controls can be added to enhance operator convenience.



# **PERMANENT VAN INTEGRATION**

With sufficient cabinetry, desk-integrated control unit and 27" Touch screen monitor in a laboratory alike operator studio.

# **SINGLE CABLE ELECTRIC CUTTING**

SEWER ROBOTICS electric cutter robots can be used in combination with a single hybrid cable to reach far inside the pipe.







#### R125 150 - 600MM (6-24")

The multi-functional and heavy-duty, stainless steel, R125 crawler has a very slim, flat-bottom, 100mm (4") body for maximized clearance inside 150mm (6") pipelines.

The R125 features the twist-and-lock mechanism to exchange various job-specific equipment modules within 60 seconds and is compatible with SEWER ROBOTICS' mobile and vehicle integrated control units, cable- and hose reels.



WJ125 WATER JET & HA125 CUTTER

#### **APPLICATIONS**

 UHP water jet cutting for the removal of solid obstructions and deposits settled

SCAN FOR VIDEO

- Lateral reinstatement & cutting protruding taps
- Installation of Top Hats, Mechanical repair sleeves and other (UV) spot repair patches
- Removing rocks and other items from pipelines with the gripper
- CCTV Inspection



#### **SPECIFICATIONS**

Scope of use : 150 - 600mm (6-24")
Drive : AWD - Electric

Rotation (pan) : Infinite - Electric Length : 405mm (16") Body diameter : 100mm (3.9") Weight : 15kg (33lbs)

#### **COMPATIBLE MODULES**

- WJ125 Water jet cutting 150 – 600mm (6-24")
- HA125 Lateral reinstatement 150 – 500mm (6-20")
- CCTV Inspection 150-500mm (6-20")
- Gripper 150 – 600mm (6-24")
- UVP125 UV-LED cured patching 150 – 500mm (6-20")

#### **FEATURES**

- Twist-and-lock-mechanism
- Heavy-duty stainless steel
- Roll and Pitch sensors (x-y)
- Continuously pressurized
- Pressure sensor
- Rotation sensor
- Temperature sensor

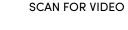
- Wheels and spacers
- Additional weights
- Custom developed modules
- Descaling (or circumferential cutting) tool with adjustable rotating lances



#### **CAM 125HD** 150 - 500MM (6-20")

The CAM125 module connects the CAMTRONICS ZRK70 HD Pan & Tilt inspection camera with the Sewer Robotics R125 crawler for quick High-Definition pre- and post inspections.

The CAM125 module features a pan & tilt camera and a pressure adjustable air coupling at the front, operated from the control unit to connect with most available spot repair packers in the market.





SEWER ANALYTICS web app



#### **SPECIFICATIONS**

Drive

Scope of use : 150 - 500mm (6-20")

Video : Analog HD

: 1080p, 30fps (recorded)

Internal storage : 32 GB

: AWD - Electric

Camera pan : Infinite
Camera tilt : 230°
Focus : Manual

Lighting : Intensity adjustable LEDs

Location transmitter: 512 Hz

Inspection software : SCS (NEN EN 13508)

: WINCAN (EN 13508, : WRc, NASSCO)

: POSM (NASSCO)

Air pressure : Max. 10 bar (145psi) Length : 158mm (6.2")

Weight : 1,6kg (3.6lbs)

#### **FEATURES**

- Compatible with R125 crawler
- Compatible with SEWER ANALYTICS WEB
- Automatic web synchronization\*
- Auto-horizon adjustment
- Single button joint inspection
- Air coupling for spot repair packers
- Camera compatible with push cable for inspection of 100mm (4") pipeline

#### **ACCESSORIES**

- Push cable reel for inspections inside 100mm (4") pipelines
- Laser crack measurement
- 512Hz Locator receiver

\* Internet connection required

#### **WJ125** 150 - 600MM (6-24")

High-pressure water jet cutting is the best and most efficient solution for removing solid obstructions and deposits settled.

Water jet cutting uses a targeted high pressure water blast, precisely applied and continuously monitored, to remove roots, cement, grout, concrete, failed liners and mineral deposits without adding damage to the host pipe.



WJ125 WATER JET CUTTER

"REMOVE ROOTS, CEMENT, GROUT, CONCRETE, FAILED LINERS AND MINERAL DEPOSITS"

SCAN FOR VIDEO



**UHP CONCRETE REMOVAL** 

#### **SPECIFICATIONS**

Scope of use Max. pressure Movements

Drive
Rotation (pan)
Ram lift

Nozzle pivot (tilt) Lighting Lens cleaner Length Weight :150 - 600mm (6-24")

: 3000 bar (43,500 psi)

: 4-axis

: AWD – Electric

: 500° - Electric

: 210mm (8")

: Hydro-pneumatic

: 110°- Hydro-pneumatic

: Intensity adjustable LEDs

: Compressed air

: 350mm (13.7")

: 5kg (11lbs)

#### **FEATURES**

- Compatible with R125 crawler
- Heavy duty materials
- Speed adjustable movements
- Wide angle color camera with Sapphire protection lens
- Twist-and-lock mechanism

- Rotary- and pinpoint nozzles with extensions
- Fluid lens cleaner for concrete cutting
- Mixing unit to add root foaming or grease dissolving, additives
- Gripper

# LATERAL REINSTATEMENT CUTTING





SCAN FOR VIDEO

#### HA125 150 - 500MM (6-20")

The HA125 reinstatement cutter has a decent clearance inside relined 150mm (6") pipelines and can be used inside pipelines up to 500mm (20") with its 205 mm (8") ram lift.

The 90-degree cutter motor pivot and ram lift are hydro-pneumatically actuated for maximized durability, force and precision without hydraulics inside the robot.

The durable R125 is easy to service and features a powerful cutter motor, great camera visibility with lens cleaner and very precise and operator friendly controls. "THE MOST POWERFUL 150MM (6")
CUTTER ON THE MARKET!"



**CUTTING A CAST IRON TAP** 

#### **SPECIFICATIONS**

Scope of use Cutting motor

Cutter shaft Movements

Drive

Rotation (pan)

Ram lift

Cutter pivot (tilt) Lighting Lens cleaner

Weight Lenght : 150 - 500mm (6-20")

: WM300 - Water

: PM300 - Pneumatic

: EM300 - Electric

: M14 thread

: 4-axis

: AWD - Electric

: 500° - Electric

: 205mm (8")

: Hydro-pneumatic

: 90°- Hydro-pneumatic

: Intensity adjustable LEDs

: Compressed Air

: Water

: 5,1kg (11.2lbs)

: 342mm (13.5")

#### **FEATURES**

- Compatible with R125 Crawler
- Heavy-duty materials
- Speed adjustable movements
- Wide angle color camera with Sapphire protection lens
- Durable stainless body without delicate exterior parts
- Short design with hinging strain relief for tight manholes
- Maintenance friendly

- M14x2 threaded cutter bits & tools
- Cutter brackets for circumferential and longitudinal cutting
- Packer 'puck' coupling mechanism
- Gripper



# SOLID DEBRIS REMOVAL



SCAN FOR VIDEO

#### **GRIPPER**

The gripper accessory is compatible with all water driven lateral reinstatement and water jet cutting job-specific modules. It has 3 replaceable 'fingers' that can be closed to grab and remove solid debris and other undesired objects from pipelines.

The closing force of the gripper's fingers is controlled by adjusting the pressure of the high-pressure power pack.



SAVING A ROV FROM A LIVE PIPE



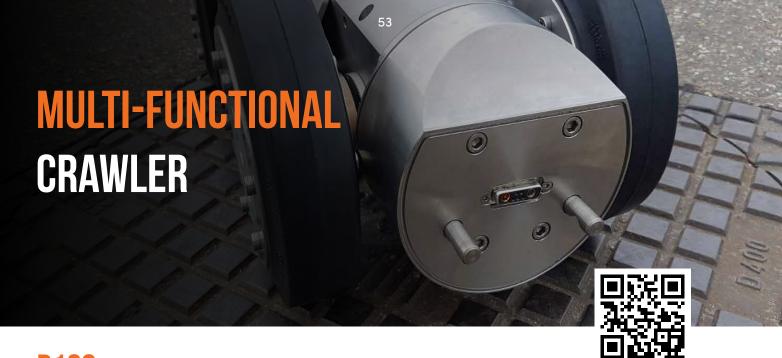
REMOVING A ROCK

#### **COMPATIBLE MODULES**

- HA125 Lateral reinstatement
- WJ125 Water jet cutting
- HA195 Lateral reinstatement
- WJ180 Water jet cutting
- WJ200 Water jet cutting
- HA250 Lateral reinstatement
- WJ250 Water jet cutting

#### **FEATURES**

- Heavy duty materials
- Adjustable 'fingers' for different sizes and closing angles
- Adjustable closing force via pressure



#### R160 200 - 750MM (8-30")

**APPLICATIONS** 

The heavy duty stainless steel R160 is compatible with various job-specific equipment modules for underground pipe inspection, cleaning, cutting and rehabilitation from lined 200mm (8") pipes and larger with a variety of wheels and spacers.

The modules can be exchanged within 60 seconds due to the twist-and-lock mechanism.

- - **DESCALING TOOL**

 UHP water jet cutting for the removal of solid obstructions and deposits settled

SCAN FOR VIDEO

- Lateral reinstatement & cutting protruding taps
- Installation of Top Hats and other (UV) spot repair patches
- Removing rocks, debris and other items from pipelines with the gripper
- CCTV Inspection

#### **SPECIFICATIONS**

Scope of use Max. pressure : 200 - 750mm (8-30") : 3000 bar (43,500psi)

Drive Rotation (pan) : AWD – Electric : Infinite – Electric

Length Body diameter Weight : 440mm (17.3 ") : 125mm (4.9")

: 22,3kg (49.2lbs)

#### **COMPATIBLE MODULES**

- WJ180 Precision Water Jet Cutting 200 500mm (8-20")
- WJ200 Precision Water Jet Cutting 250 750mm (10–30")
- HA195 Lateral Reinstatement Cutting 250 – 750mm (10–30")
- CAM160 CCTV Inspection 200 - 500mm (8-20")
- Gripper250 750mm (10-30")

#### **FEATURES**

- Twist-and-lock-mechanism
- Heavy-duty stainless steel
- Roll and Pitch sensors (x-y)
- Continuously pressurized
- Pressure sensor
- Rotation sensor
- Temperature sensor

- Wheels and spacers
- Additional weights
- Custom developed modules
- Descaling (or circumferential cutting) tool with adjustable rotating lances



#### CAM 160HD 200 - 500MM (8-20")

The CAM160 module connects the CAMTRONICS ZRK70 HD Pan & Tilt inspection camera with the Sewer Robotics R160 crawler for quick High-Definition pre- and post inspections with the same robot system that is used for cutting protruding services, solid obstructions removal and lateral reinstatement cutting.

The CAM160 module features a pan & tilt camera and a pressure adjustable air coupling at the front, operated from the control unit to connect with most spot repair packers available in the market.



SEWER ANALYTICS web app

**W** WinCan



#### **SPECIFICATIONS**

Air pressure

Scope of use : 200 - 500mm (8-20")

Video : Analog HD

: 1080p, 30fps (recorded)

Internal storage : 32 GB

Drive : AWD - Electric

Camera pan : Infinite
Camera tilt : 230°
Focus : Manual

Lighting : Intensity adjustable LEDs

Location transmitter: 512 Hz

Inspection software : SCS (NEN EN 13508)

: WINCAN (EN 13508,

: WRc, NASSCO) : POSM (NASSCO)

: Max. 10 bar (145psi)

Length : 158mm (6.2") Weight : 1,6kg (3.6lbs)

#### **FEATURES**

SEWER

- Compatible with R160 crawler
- Compatible with SEWER ANALYTICS WEB
- Automatic web synchronization\*
- Auto-horizon adjustment
- Single button joint inspection
- Air coupling for spot repair packers
- Camera compatible with push cable for inspection from 100mm (4") pipeline

#### **ACCESSORIES**

- Push cable reel for inspections inside 100mm
   (4") pipelines
- Laser crack measurement
- 512Hz locator receiver

\* Internet connection required



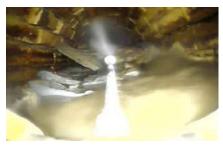
#### WJ180 200 - 500MM (8-20")

The WJ180 precision water jet cutting module is compatible with the R160 crawler for removing root balls, hardened fat, grease, cement, scaling, calcium, mineral build- up and overpoured concrete from within 200 – 500mm (8-20") pipes.

The WJ180 features a moving camera, lens cleaner and 90 degrees nozzle lift.

"THE VERY FIRST WATER JET CUTTING ROBOT WAS RETIRED IN WORKING CONDITION AFTER 15 YEARS OF SERVICE"

SCAN FOR VIDEO



WJ180 REMOVING CONCRETE



WJ180 WITH PINPOINT NOZZLE

#### **SPECIFICATIONS**

Scope of use
Max. pressure
Movements
Drive
Rotation (pan)
Nozzle pivot (tilt)
Camera rotation
Lighting
Lens cleaner
Length
Weight

- : 200 500mm (8-20")
- : 3000 bar (43,500 psi)
- : 3-axis
- : AWD Electric
- : 500° Electric
- : 90° Hydro-pneumatic
- : Simultaneous with nozzle
- : Intensity adjustable LEDs
- : Compressed air
- : 250mm (9,8")
- : 7,5kg (16.4lbs)

#### **FEATURES**

- Compatible with R160 crawler
- Heavy duty materials
- Speed adjustable movements
- Wide angle color camera with Sapphire protection lens
- Twist-and-lock mechanism

- Rotary- and pinpoint nozzles with extensions
- Fluid lens cleaner for concrete cutting
- Mixing unit to add root foaming or grease dissolving additives
- Gripper



# UHP PRECISION WATER JET CUTTING



SCAN FOR VIDEO

#### **WJ200** 250 - 750MM (10-30")

The WJ200 UHP water jet cutting module removes root balls, hardened fat, grease, cement, scaling, calcium, mineral build- up and over- poured concrete from within 250 - 750mm (10-30") pipes.

The WJ200 jetting module features 270mm (11") arm lift and 90° nozzle- tilt to ensure the right working angle in large pipelines of up to 750mm (30").

The LED lighting and camera are placed next to the nozzle to see exactly what the nozzle aims at.



**FAILED CIPP LINER** 



**CONCRETE** 



WJ200 EGG-SHAPED PIPE SETUP

#### **SPECIFICATIONS**

Scope of use Max. pressure Movements

Drive
Rotation (pan)
Ram lift

Nozzle pivot (tilt) Camera rotation Lighting Lens cleaner Length Weight : 250 - 750mm (10-30")

: 3000 bar (43,500 psi)

: 4-axis

: AWD – Electric

: 500° - Electric

: 270mm (11")

: Hydro-pneumatic

: 90° - Hydro-pneumatic

: Simultaneous with nozzle

: 4 Intensity adjustable LEDs

: Compressed air

: 461mm (18.1")

: 12kg (26.5lbs)

#### **FEATURES**

- Compatible with R160 crawler
- Heavy duty materials
- Speed adjustable movements
- Wide angle color camera with sapphire protection lens
- Twist-and-lock mechanism

- Rotary- and pinpoint nozzles with extensions
- Fluid lens cleaner for concrete cutting
- Mixing unit to add root foaming or grease dissolving additives
- Gripper

# LATERAL REINSTATEMENT CUTTING





SCAN FOR VIDEO

#### HA195 250 - 750MM (10-30")

The HA195 reinstatement cutter features an infinite rotating camera with water lens cleaner and on-demand wiper for a clear and unobstructed view while reinstating service connections after lining and cutting protruding laterals and hammer taps of any material from inside 250 – 750mm (10–30") pipelines.

This HA195 reinstatement cutter can be used with the powerful WM500 water driven cutter motor, or –when water jet cutting is not desired—with a pneumatic or silent electric driven cutter motor.

The cutter motor can be easily replaced for a packer coupling mechanism to catch the 'puck' of most readily available spot repair packers.

"COMPATIBLE WITH MOST TOP HAT AND (UV) SPOT REPAIR PACKERS"



HA195 WITH TOP HAT

#### **SPECIFICATIONS**

Scope of use Cutting Motor

Cutter shaft Movements

Drive

Rotation (pan)

Ram lift

Cutter Pivot (tilt) Camera Rotation Lighting

Lens cleaner

Weight Lenght : 250 - 750mm (10-30")

: WM500 - Water

: AM500 - Pneumatic

: EM500 - Electric

: M14 thread

: 4-axis

: AWD - Electric

: 500° - Electric

: 270mm (11")

: Hydro pneumatic

: 90° - Hydro-pneumatic

: Infinite - Electric

: 4 Intensity adjustable LEDs

: Water

: On-demand wiper

: 12kg (26.5lbs)

: 458mm (18.7")

#### **FEATURES**

- Compatible with R160 Crawler
- Coupling mechanism for spot repair packers
- Heavy-duty materials
- Speed adjustable movements
- Wide angle color camera with Sapphire protection lens
- Durable stainless body without delicate exterior parts
- Maintenance friendly

- M14x2 threaded cutter bits & tools
- Cutter brackets for circumferential and longitudinal cutting
- Packer 'puck' coupling mechanism
- Gripper



#### R250 250 - 1000MM (10-40")

The multi-functional and heavy-duty, stainless steel, R250 crawler features an UHP swivel inside the robot to allow infinite rotation.

The various job-specific equipment modules are easily exchanged within 60 seconds for underground pipe inspection, cleaning, cutting and rehabilitation from lined 250mm (10") pipes and larger with a variety of wheels and spacers.

The R250 is compatible with SEWER ROBOTICS' mobile and vehicle integrated control units, cable- and hose reels.

#### **APPLICATIONS**

- UHP water jet cutting for the removal of solid obstructions and deposits settled
- Lateral reinstatement & cutting protruding taps
- Installation of Top Hats and other (UV) spot repair patches
- Removing rocks, debris and other items from pipelines with the gripper
- CCTV Inspection



R250 CRAWLER AND WJ250 WATER JET

#### **SPECIFICATIONS**

Scope of use Max. pressure

Drive Rotation (pan) Length

Weight

: 250 - 1000mm (10-40")

: 3000 bar (43,500psi)

: AWD - Electric

: Infinite - Electric

: 645mm (25.4")

: 57kg (126lbs)

#### **COMPATIBLE MODULES**

- WJ250 Precision Water Jet Cutting 300 1000mm (12–40")
- HA250 Lateral Reinstatement Cutting 300 – 1000mm (12–40")
- CAM250 CCTV Inspection 300 - 1000mm (12-40")
- Gripper 300 1000mm (12-40")

#### **FEATURES**

- Twist-and-lock-mechanism
- Heavy-duty stainless steel
- Roll and Pitch sensors (x-y)
- Continuously pressurized
- Pressure sensor
- Rotation sensor
- Temperature sensor

- Wheels and spacers
- Additional weights
- Auxiliary lighting
- Auxiliary camera with 180° rotation for looking forward and backward
- Descaling (or circumferential cutting) tool with adjustable rotating lances

# UHP PRECISION WATER JET CUTTING



SCAN FOR VIDEO

#### WJ250 250 - 1000MM (10-40")

The WJ250 water jet cutting robot can be used for fast and powerful solid obstructions removal inside 250 – 1000mm (10–40") sewer-, stormand water pipelines with its 520mm (20") ram lift and 90 degree nozzle pivot.

This beast features infinite rotation while precisely applying a water blast of max. 3000 bar (43,500psi) for controlled removal of tree roots, solidified fat, grease, grout, cement, tuberculation, scaling, grout, cement, failed liner, calcium, mineral deposits and concrete to avoid costly pipeline replacement.



WJ250



MINERAL BUILD-UP

#### **SPECIFICATIONS**

Scope of use Max. pressure Movements Drive Rotation (pan) Ram lift

Nozzle pivot (tilt) Camera rotation Lighting Lens cleaner Length Weight : 250 - 1000mm (10-40")

: 3000 bar (43,500psi)

: 4-axis

: AWD - Electric

: Infinite - Electric

: 520mm (20")

: Hydro-pneumatic

: 90° - Hydro-pneumatic

: Simultaneous with nozzle

: 4 Intensity adjustable LEDs

: Compressed air

: 650mm (23.6")

: 35kg (77lbs)

#### **FEATURES**

- Compatible with R250 crawler
- Heavy duty materials
- Speed adjustable movements
- Wide angle color camera with Sapphire protection lens
- No external UHP hoses

- Rotary- and pinpoint nozzles with extensions
- Fluid lens cleaner for concrete cutting
- Mixing unit to add root foaming or grease dissolving additives
- Gripper



# LATERAL REINSTATEMENT GUTTING



SCAN FOR VIDEO

#### HA250 250 - 1000MM (10-40")

The HA250 is the most powerful and durable robot available for reinstating service connections after CIPP relining and cutting protruding laterals and hammer taps of any material from inside 250 – 1000mm (10-40") pipelines.

This beast is strong enough to pull a 9 ton truck and features infinite rotation, great camera visibility with both a water lens cleaner and on demand lens wiper, and very precise and operator friendly controls.



HA250

#### **SPECIFICATIONS**

Scope of use Cutter motor

Cutter shaft Movements

Drive

Rotation (pan)

Ram lift

Cutter pivot (tilt) Camera rotation Lighting Lens cleaner

Length Weight : 250 - 1000mm (10-40")

: WM500 Water

: PM500 Pneumatic

: EM500 Electric

: M14 thread

: 4-axis

: AWD - Electric

: Infinite - Electric

: 325mm (13")

: Hydro-pneumatic

: 90° - Hydro-pneumatic

: Infinite - Electric

: 4 Intensity adjustable LEDs

: Water

: On-demand wiper

: 605mm (23.6")

: 25kg (77lbs)

#### **FEATURES**

- Compatible with R250 crawler
- Heavy duty materials
- Speed adjustable movements
- Wide angle color camera with Sapphire protection lens

- M14x2 threaded cutter bits & tools
- Cutter brackets for circumferential and longitudinal cutting
- Packer 'puck' coupling mechanism with manometer(s)
- Gripper

The VRM100 mixing unit allows precise dosing of root control, grease removal and other additives for controlled spot treatments with precision water jet cutting equipment. The modular dosing unit is compatible with all precision water jet cutting modules and installed between high-pressure unit and hose reel. Operation takes place from the control unit and special software.

#### **ROOT CONTROL**

By using chemical root control you can remove roots further inside service laterals and inhibit their growth without having to fill the complete line with foam.

#### **GREASE REMOVAL**

Adding a grease remover encapsulates and dis-solves fats, oils and greases to remove blockages and prevent recollection and settlements further down the line.

# MIXING UNIT VRM 100



#### **SPECIFICATIONS**

Compatible with

: All precision water jet cutting modules (WJ125, WJ180, WJ200 and WJ250)

**Dimensions** 

: 300x500x900mm (20x12x32")

#### PRO'S

- Efficient spot treatment
- Powerful root removal
- Inhibit root growth



# UV PATCHING & SPOT REPAIR



SCAN FOR VIDEO

#### UVP125 150 - 500MM (6 -20")

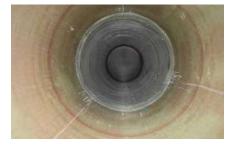
The UVP125 packer is made for rapid renovation from inside pipes made of concrete, steel, reinforced concrete, fibre cement, cast iron or PVC. Longer damagescanberehabilitated by overlapping patches.

The Ultra Violet LED light-train has a low power consumption and is suitable for pipes of differing diameters from 150 to 500mm (6-20") by easily exchanging the end-discs and bladders of the packer.

The UVP125 can be equipped with the same Pan & Tilt camera as the CAM125 CCTV inspection module and is directly compatible with the same hybrid cable and control unit as the robot system. The UV-packer can be used as an equipment module for the R125 crawler, or as stand-alone to be used with a cable, push rods or a suitable CCTV crawler.



WATER INFILTRATION



**OVERLAPPING PATCHES** 

#### **SPECIFICATIONS**

Scope of use : 150 - 500mm (6-20")

Curing time : 6 – 10 Minutes
Power : 100-230V, 50-60Hz

Max. pressure : 100–230V, 50–60Hz

Renovation lengths : 600mm (24") Standard

: 900mm (36") : 1200mm (48") : Custom length

Data logging: : Air pressure

: Deformation

: Curing temperature

#### **FEATURES**

- Compatible with the Sewer Robotics system
- Time-saving preparation
- No on-site mixing of resins and impregnation
- Independent of temperatures: all-year operation possible
- High adhesive tensile strength
- Low shrinking characteristics

- Pan & tilt CCTV Inspection camera
- Packer 'puck' coupling mechanism
- Hinging joint connection
- Push rods
- Air control box





The UV-cured FIBALITE material is light curing glass reinforced polyester (G.R.P.), manufactured in a sheet form comprising a matrix of polyester resin, E-type glass reinforcement, special inert fillers and photoinitiator, sandwiched between two thin nylon protection films. The upper film, which is permeable for UV-light, stays during the application (with the exception of the overlap). Extra advantage is the very low emission of styrene and glass fibre particles during storage, transport and application.

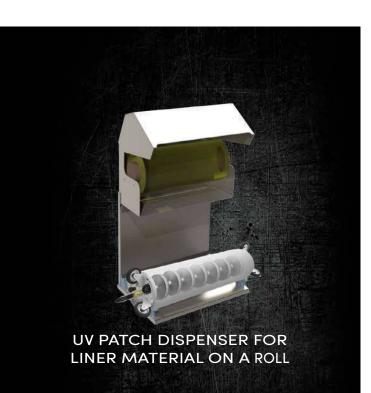
The material is available in two thickness options: 1.5mm or 2.0mm. It can be installed either as a single layer with a thickness of 1.5mm or 2.0mm, or as a double layer stack with a minimum thickness of 3mm or 4mm.

#### PRO'S

- SUPER FAST PREPARATION
- ALWAYS THE RIGHT DIAMETER PATCH
- SINGLE STOCK SOLUTION
- MINIMAL WORKING SPACE REQUIRED
- HIGH STRENGTH
- HIGH FLEXIBILITY AT OFF-SET JOINTS
- NO ON-SITE MIXING OF RESINS AND IMPREGNATION



"INDEPENDENTLY TESTED ACCORDING ASTM D790 8 ASTM F1216"



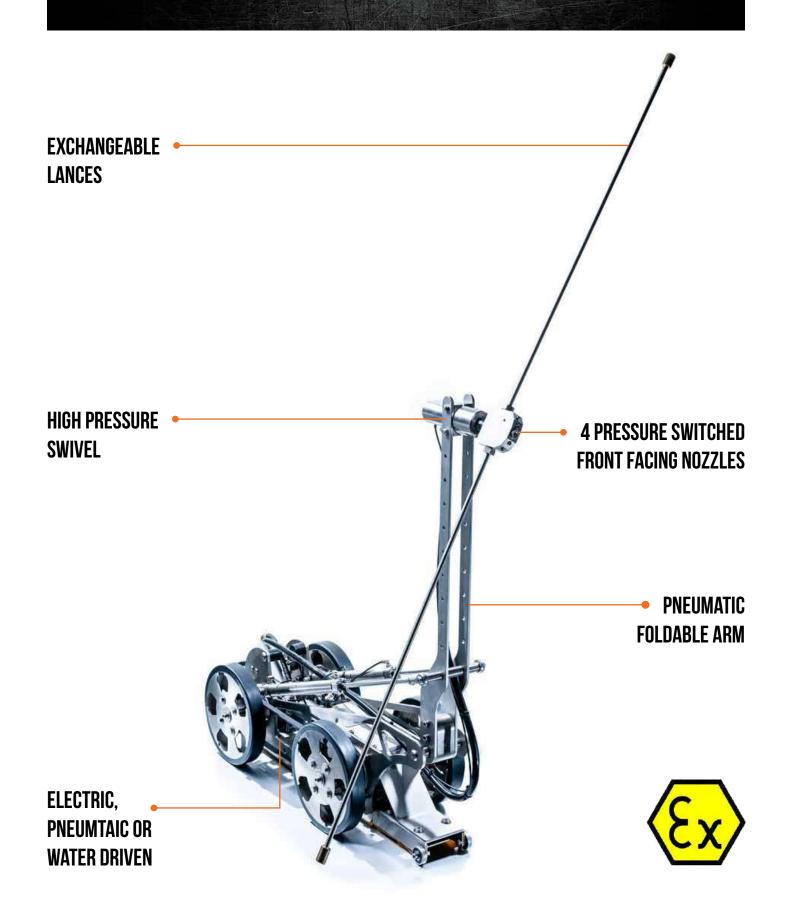
#### **UV LINER ON A ROLL**

The UV-cured liner material is supplied on 600mm (24") wide rolls. The roll is placed in the dispenser, which is designed to easily cut the liner at the right size, remove the protection film and load it on the packer by a single person in 3 minutes.

- Reinforcement
- Resin
- Adhesion properties
- Adhesive modulus
- Thickness
- Adhesive tensile strength
- Flexural strength
- Flexural modulus
- Roll length
- Roll width (Patch length)
- Shipping dimensions
- Shipping weight

- : E-glass fibers (±70%)
- : UV curing ISO Polyester
- : >10 MPa (to steel, shot blast) (ASTM D4541)
- : 3,8 GPa (ISO 527-2)
- : 1,5/2,0/3,0/4,0 mm
- : ≥ 90MPa (ISO 527-2)
- : 20,486psi (ASTM D790)
- : 1,451,692psi (ASTM D790)
- : 10m (33')
- : 600mm (24")
- : 750x260x270mm
- (29.5x10.2x10.6")
- : 20kg (44LBS)

## "CLEANING OF (SEA)WATER INTAKES, HORIZONTAL TANKS, & PIPELINES"





# LARGE DIAMETER PIPE 8 TANK CLEANING



SCAN FOR VIDEO

#### TWK300 1000 - 3000MM (40-120")

The TWK300 tank cleaning robot has a pneumatic foldable arm to fit 400mm (16") manholes, and exchangeable lances for intense cleaning, close to the surface of 1000 to 3000 mm (40 - 120") tanks and pipes.

The TWK300 is available with pneumatic or water hydraulic drives to comply with Atex Zone 0 or with electric drives to reach far inside large diameter pipelines or seawater intakes and full compatibility with other SEWER ROBOTICS and PRO-IETTING robot cable reels and control systems.



**DEBRIS REMOVAL ADAPTER** 



FORWARD FACING NOZZLES

#### **SPECIFICATIONS**

■ Scope of use : 1000 - 3000mm (40-120")

■ Min. access diameter: 400mm (15,7")

Drive : Electric

: Pneumatic (ATEX)

: Water hydraulic (ATEX)

■ Max. pressure : 500bar (7,250psi) (ATEX)

: 3000 bar (40,300psi)

■ Max. flow : 21GPM (80LPM)

■ Max. rotation : 1000 RPM

■ Max. temperature : 90°C (194°F)

■ Weight : 45kg (99lbs)

■ Dimensions : 850x350x400mm

(33.5x14x 16")

#### **FEATURES**

- Exchangeable lances for intense cleaning close to the surface
- Pressure switched forward-facing nozzles for cleaning tank heads
- Pneumatic foldable arm to fit 400mm (16") access points
- Electric driven for compatibility with other SEWER ROBOTICS and PRO-JETTING robot systems

#### **OPTIONS**

- Camera module(s)
- Adapter for vacuum debris removal
- Hot water compatibility
- Certified Atex explosion Zone 1 or Zone 0

#### "THE R600 INDUSTRIAL CLEANING ROBOT

# IS COMPATIBLE WITH THE SAME CONTROL UNIT AND CABLE REEL AS THE SEWER ROBOTS"

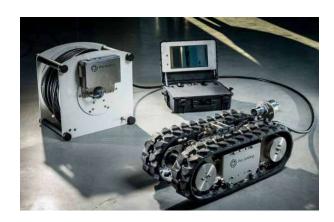


#### **REAR VIEW CAMERA**

Rear view camera and convenient connections for power- and job-specific supplies to minimize setup times.

#### **POWERFUL DRIVE**

The powerful R600 can be equipped with either 2 or 4 driving motors that provide 150 or 300 KG towing capacity to take a heavy load or reach far inside pipelines or tanks.





#### **DURABLE & MODULAR BASE**

The modular base platform is made off durable stainless steel and adjustable in length and width to adjust to various applications.



The R600's programmable outputs allow easy customization for specialty jobs. Add auxiliary cameras and lighting, additional sensors and electronic- or pneumatic driven movements.

-Or- a completely custom tool can be developed for your specific application.



#### **MULTI-PURPOSE**

Various job-specific modules can be easily exchanged to adapt the robot for different applications via its twist-and-lock mechanism.



The R600 has a powerful linear actuator to raise the boom, cleaning arm or dome.

This actuator is operated with compressed air and features an enclosed hydraulic circuit to combine strength and precision.

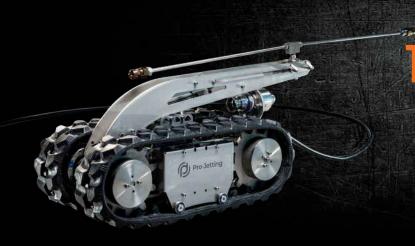


## "PROGRAMMABLE OUTPUTS ALLOW EASY CUSTOMIZATION FOR SPECIALTY JOBS"

#### **APPLICATIONS**

- SURFACE PREPARATION & REMOVAL OF MARKINGS OR STRIPING
- VACUUM EXCAVATION & SLUDGE OR BULK WASTE REMOVAL
- LARGE DIAMETER PIPE & TANK CLEANING
- COLD CUTTING & (ULTRA) HIGH PRESSURE JETTING
- YOUR CUSTOM APPLICATION





# TRACKED INDUSTRIAL **CLEANING ROBOT**



SCAN FOR VIDEO

#### R600 >500MM (>20")

The R600 is a powerful and multi-functional modular robot crawler that can be used with various job-specific modules for heavy-duty industrial applications.

The R600 is compatible and easy exchangeable with the SEWER ROBOTICS mobile cable reel and control unit for a very small footprint or can be used in combination with a special purpose vehicle installed system.



VAC600

#### **SPECIFICATIONS**

Scope of use : >500MM (>20") : Forward facing Cameras : Rear view

: Intensity adjustable LEDs

Lighting Speed : 3 - 10kmh (1.9-6.2mph) Traction Force

: 250kg (550lbs) 2 motors

: 500kg (1100lbs) 4 motors

Weight : 110kg (243lbs) : 900x420x300mm Dimensions (35.4x16.5x11.8")

#### **COMPATIBLE MODULES**

- VAC600 Vacuum Excavation & Sludge removal
- SC600DVAC Dual Surface Cleaner with Vacuum
- TWK600 Large diameter pipe and tank cleaning
- WJ600 Precision Water Jet Cutting
- Your custom module

#### **FEATURES**

- Easy exchangeable job-specific modules
- Heavy-duty stainless steel
- Wide angle color camera with Sapphire protection lens
- Adjustable length and width
- Single, lightweight, hybrid cable
- Programmable outputs for customization

#### **OPTIONS**

- Additional sensors
- Auxiliary cameras and lighting
- Electronic- or pneumatic driven features
- Customization and development of jobspecific modules

# C70 CAMERA NOZZLE

Intruding sealing material

Surface damage - aggregate visible

Solid deposits - hard or compacted material e.g. concrete

AI AUTOMATIC DETECTED DEFECTS



#### **SUPERIOR VIDEO**

The auto-upright, High-Definition camera is protected by stacked Sapphire lenses and records always from a perfect horizontal position.

#### PERFECTLY HORIZONTAL VIDEO

Mechanical self-leveling keeps the camera at a perfect horizontal position without eliminating pixels.



#### **EXTREMELY DURABLE**

The Stainless housing and stacked, Sapphire, lenses withstand impacts from rocks, concrete deposits and a good swing into the pipe.

#### **10 HOURS RUNTIME**

The Lithium-Ion battery pack is rapidly charged and lasts as long as a good 10 hour working day.



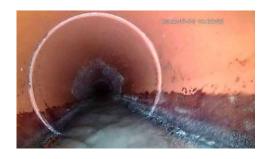
#### **AUTOMATIC RECORDING**

A built-in high pressure switch activates 8 super bright LED's and automatically starts the recording without interrupting the cleaner's workflow.



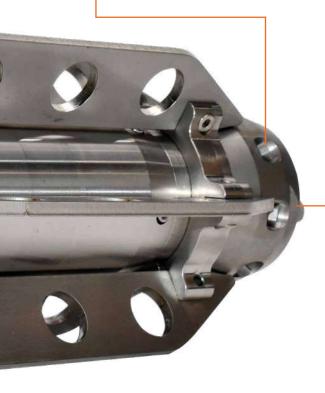
#### **WIDE APPLICATION RANGE**

Various easy exchangeable skids are available to keep the video nozzle at the right position inside 150 – 1000mm (6 – 40") pipelines.



#### **GREAT CLEANING CAPACITY**

Great cleaning and debris transportation with 8x 55° & 4x 20° exchangeable Ceramic jets. (Other nozzle configurations available)







#### **FOR ANY TRUCK**

The stand-alone C70 camera nozzle threads onto any jetting hose.

#### **NO BUTTONS NOR FLASH DRIVES**

WIFI communication between nozzle and tablet for wireless operation and video downloading from the nozzle and uploading to the cloud.

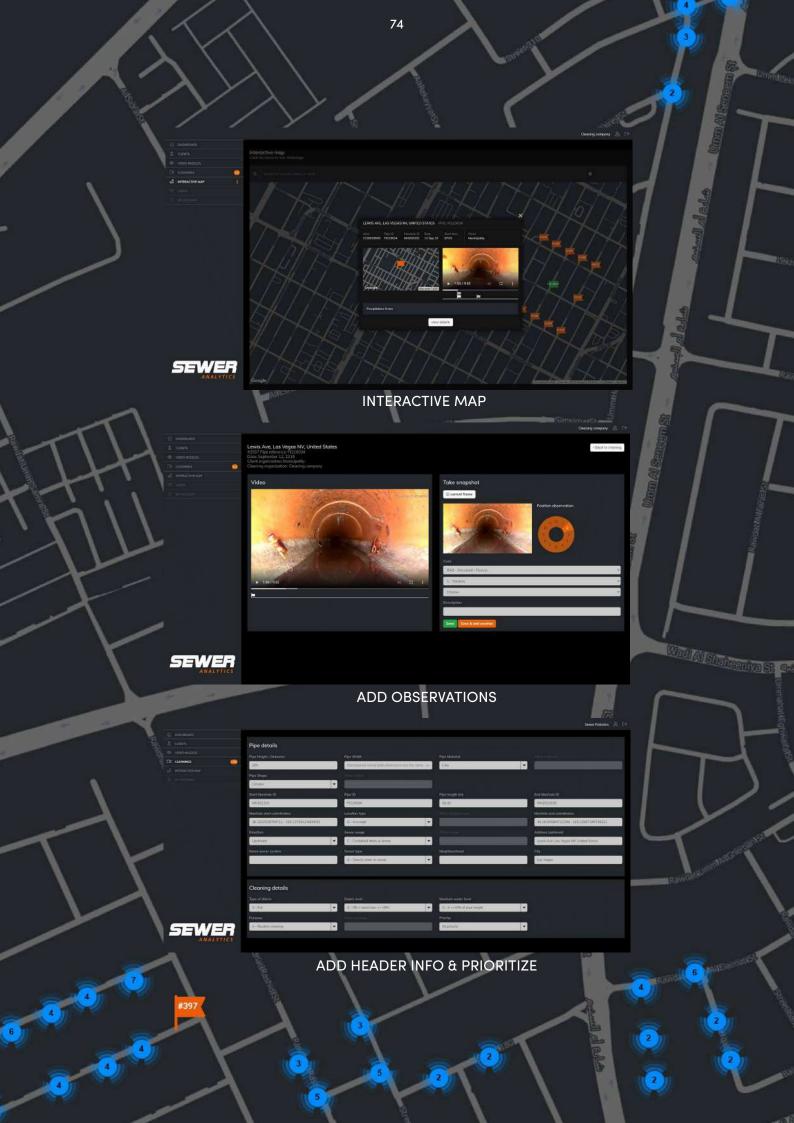


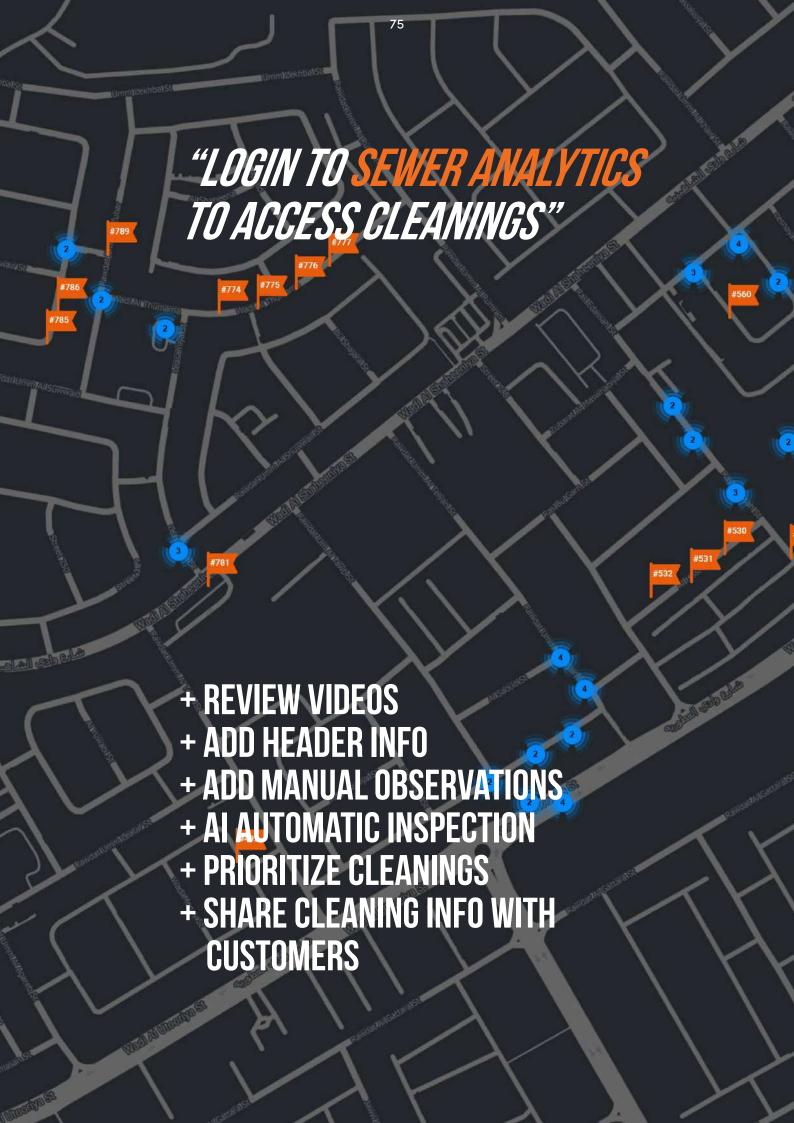
#### **SEWER ANALYTICS WEB CLOUD**

Login to SewerAnalytics.com to review videos, add header information and observations, prioritize next actions and share cleaning reports with customers.

#### AI AUTOMATIC DEFECT CODING

Reliable artificial intelligence software that automatically codes and classifies defects according international CCTV inspection standards.





# "THE FUTURE STARTS TODAY"

With reliable artificial intelligence software that automatically analyses your cleaning videos by coding and classifying defects according international CCTV inspection standards.

Your analysed cleanings are conveniently organized and prioritized in Sewer Analytics. Ready for decisions making.

2021-06-02 00 16 58

Infiltration - gushing

Deposits attached - grease

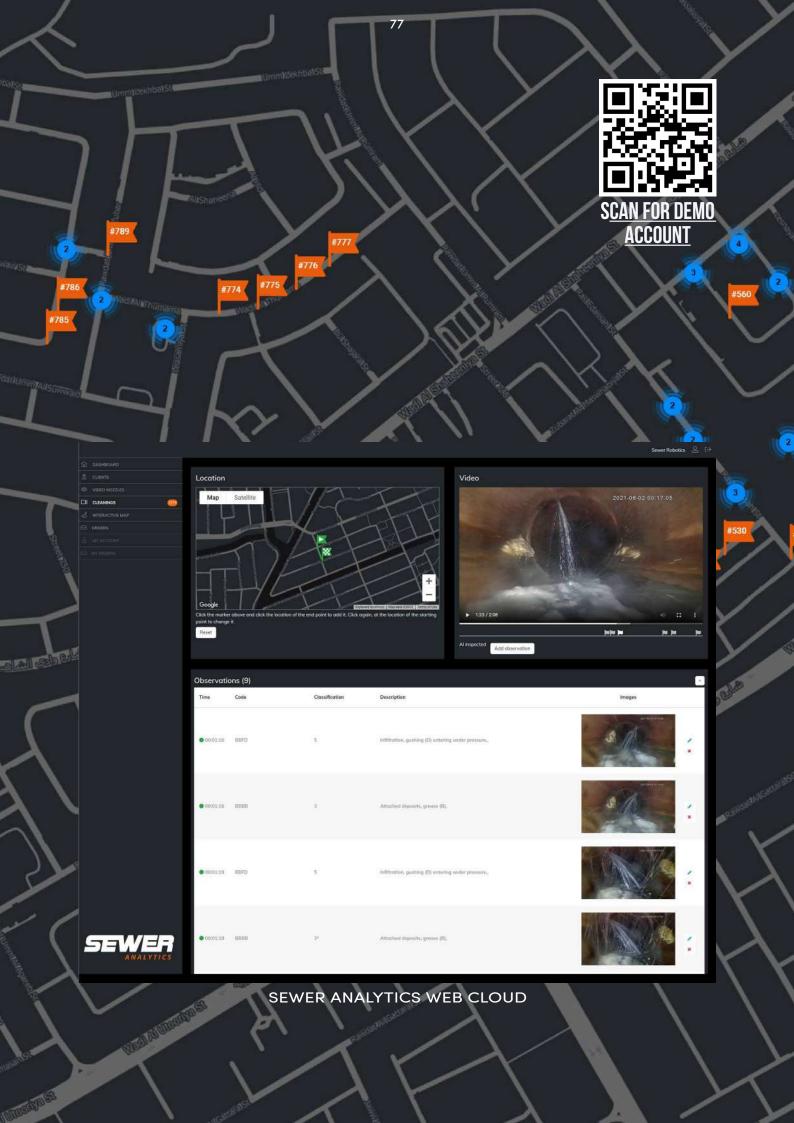
AI AUTOMATIC DETECTED DEFECTS

2021-06-02 00:17:01

Infiltration - gushing

Deposits attached - grease

AI AUTOMATIC DETECTED DEFECTS



# C70 CLEANING WORKFLOW



The Sewer Robotics C70 video nozzle is compatible with any jetting truck and easily threaded on the jetting hose.

The pipe segment is cleaned with the C70 camera nozzle

Based on the cleaning (what cleaning operator, sees, feels, smells and hears)

No anomaly suspected

Anomaly suspected

The video is watched to determine next actions

AT THE END OF THE DAY

All videos are synchronized and uploaded to the Sewer Analytics cloud

> The videos are watched or automatically inspected by Al

THE NEXT MORNING

Coded and prioritized cleaning data is ready for making decisions



The cleaning video is downloaded and watched for an immediate pipe status report and to determine the next actions (e.g. the pipe needs more cleaning, or a different solution is required).



Back at the depot, the cleaning videos are automatically uploaded to Sewer Analytics with date, time and GPS coordinates while the C70 and tablet are charging.



The cleaning videos are automatically inspected by AI and defects are coded and prioritized according international CCTV standards.





# **C70 CAMERA NOZZLE**





SCAN FOR VIDEO

### **C70** 150 - 1000MM (6-40")

The durable C70 Camera nozzle easily threads onto any jetting hose to help cleaning crews and asset managers record High Definition, autoupright, video at low-cost during pipe cleaning operations.

Once the pipe is cleaned, the video is downloaded with a single touch of a button and automatically uploaded to the Sewer Analytics web cloud, together with the date, time and GPS location of the cleanings.



C70 SKIDS



SEWER ANALYTICS WEB CLOUD

#### **SPECIFICATIONS**

Scope of use Pressure

Hose connection Video

Camera Internal storage Cleaning

Housing **Protection lenses** Lighting

**Battery** 

Weight **Dimensions** Tablet

- : 150 1000mm (6-40")
- : 125 275bar (2000-4000psi)
- : Up to 3000bar (43,500psi) 1
- : 80 650 LPM (21-170GPM)
- : 34, 1 and 11/4" BSP & NPT
- : Self leveling, High-Definition,
- : CMOS, 1980x1080 or 1280x720
- : 32 Gb
- : 8x 55° & 4x 20°
- iets with Ceramic orifices
- : Other nozzles (optional)
- : Durable, Stainless-steel
- : 2 Sapphire lenses, stacked
- : 7 intensity adjustable superbright LED's
- : Lithium-lon battery pack
- : 10+ hours battery runtime
- : 3 hours charge time
- : 6,2kg (13,7 Lbs) <sup>2</sup>
- : D90x295mm (D3.5x11.6") <sup>2</sup>
- : 8", Rugged, IP67
- : Windows® operated
- : GPS receiver

#### **FEATURES**

- Pressure activated lighting
- Pressure activated recording
- Wireless operation & video downloading
- Great cleaning, thrust and debris removal

#### **SEWER ANALYTICS**

- Password-protected access from any device
- Automatic cloud synchronization<sup>3</sup>
- Automatic registration of date, time and location
- Interactive map, observation coding, prioritizing and sharing functions
- FREE 500 GB Sewer Analytics cloud storage

#### **ACCESSORIES**

- |et inserts
- Hose adapters and swivels
- Nozzles for different cleaning applications
- Large diameter skid with auxiliary lighting
- Charging dock for C70 and tablet
- Inclination measurement
- Customized software integrations

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# **OUR STORY**

Two operators, tasked with removing a massive root blockages from a sewer pipeline had the great idea of equipping a robot crawler with a high-pressure jet.

With that solution, almost two decades ago, the company ID-TEC was founded and introduced the first modular robot system to perform various sewer rehabilitation jobs.

Today, ID-TEC's technologies, marketed under the brand names Sewer Robotics, PRO-JETTING, MobilPower, and DiveWise-Equipment, help customers in different industries around the world to make their everyday jobs safer, easier, and more cost-effective.









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