



The Seeing North Sea Nozzle

P&W Umwelttechnik GmbH

Stettiner Str. 3 • D-26524 Hage

fon: +49 4931 / 983 996 - 0 | fax: +49 4931 / 983 996 - 9

mail: info@pw-umwelttechnik.de | www.pw-umwelttechnik.de

The „Seeing North Sea Nozzle“

The **Seeing North Sea Nozzle** may be rightly regarded as a revolution in the sewer cleaning and inspection industry. The system combines two classic environments - the conventional flushing hose with cleaning nozzle and the separate camera truck - in **one product**. Coupled with its extreme ability to turn off the **Seeing North Sea Nozzle** is unique in the world.

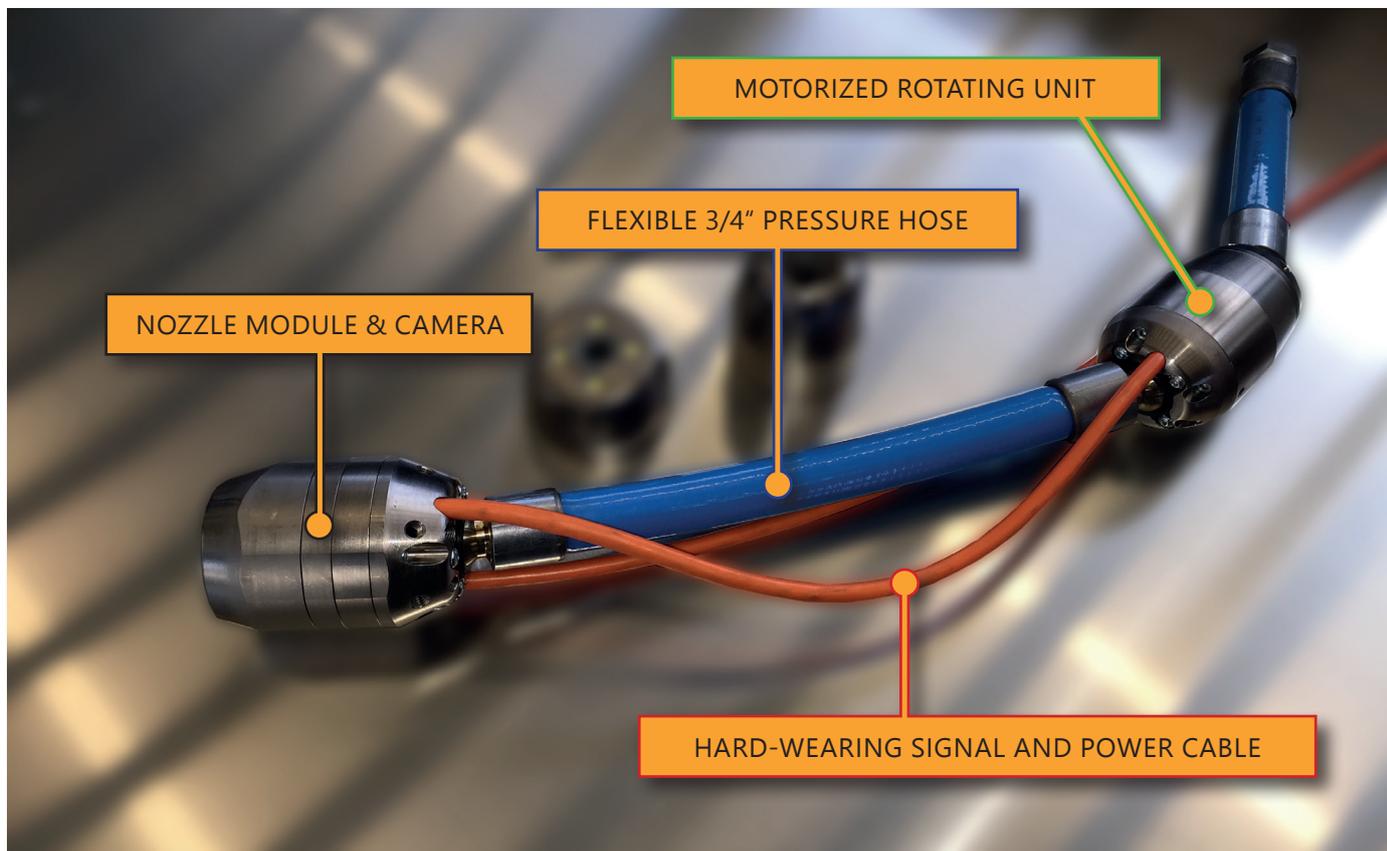
The system consists of a **motorized rotating unit** and the main **nozzle module** with an integrated camera. The motorized cable reel with an integrated meter counter and the user TFT, which holds the PC system, are located outside the vehicle.

The nozzle sends a real time video stream of its camera to the user TFT over the hard-wearing signal and power cable. The stream can be recorded in different formats. It allows not only the permanent control for the operator but enables also the documentation. After entering the locality's name a corresponding video overlay is being generated, which displays further several important details like date & time and also the current meter count of the main and sub sewer.

Furthermore the operator can take snapshots from the live stream to document damages, extraneous introductions, ingrowths, etc. This increases transparency.

The system is mainly controlled via the remote control and an additional feature is available for directing the **Seeing North Sea Nozzle**.

Every sewer vehicle can be equipped with the **Seeing North Sea Nozzle**.



Fields of application

The **Seeing North Sea Nozzle** allows you to drive in **80% filled** channels and even turn off onto it in feeders. This is achieved by the nozzle's „hovering“ above the water and the rotating unit.

This makes the system ideal for urgent actions, such as.:

- constipation in house connections or main sewers
- ingrowth
- pressed (gas-)lines
- pipe breaks and / or sewer fragments
- detection of „blind“ house connections by tracking system
- in comparison to a camera truck most of the damages can be documented and eliminated directly
- cealing and inspection of house connections
- Ddemand-based yearly flushings
- rainwater inlets
- inspection and detection of extraneous introductions
- sewer shaft control

Fundamental functionality of the „Seeing North Sea Nozzle“

Using different arrangement and cross-sections of the nozzles in the nozzle module **1** the camera and nozzle module **1** is pressed against the pipe wall (undefined).

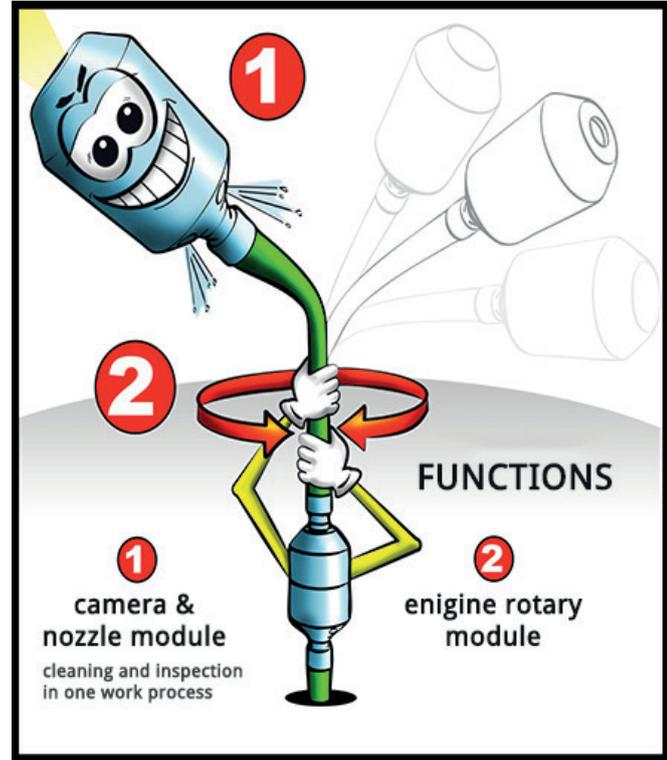
The motorized rotating unit **2** supports itself on the flushing hose and rotates (motorized) the connection hose and the nozzle module **1** along the sewer wall.

The motorized rotating unit and the camera module are fitted with special joints to turn in branch pipes or house connections within seconds.

In addition, a locating system is integrated, which enables positioning along the flushing hose (beginning from shaft opening to the nozzle head). Because you don't have to „look for a point“ this considerably eases the work process.

During locating process the locating system itself can be switched on and off or a different signal can be modulated on the cable - thus incorrect detections can be avoided.

A slide system is available as an optional accessoire which has been specifically designed for driving large channels (with low filling levels). Lengths of more than 200m are possible.



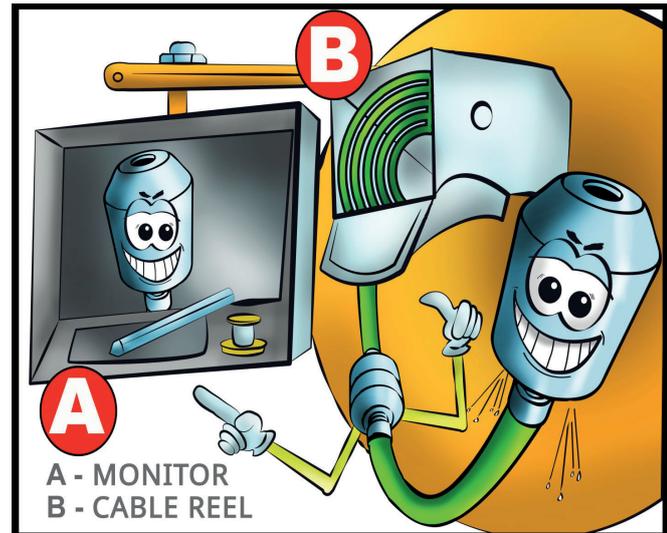
The servo-controlled cable reel **B** including the user interface with monitor and computer **A** is located outside the sewer.

The operator of the flushing vehicle controls the rebound speed – which is not limited – of the flushing hose. The uniform and parallel pull of the cable from the cable reel is fully automatic.

The monitor with the integrated PC system is mounted in a stainless steel case and suited for daylight.

Thanks to the system of the Seeing North Sea Nozzle forced postures at the manhole opening are avoided. This eliminates exposures to aerosol mist and other substances.

Most features are controlled by the remote control. Functions like entering posture names, dimming of the LED lighting are carried out at the user interface.



The „Seeing North Sea Nozzle’s“ advantages

The nozzle's design, its integrated camera and the coupled rotating unit make the **Seeing North Sea Nozzle** a revolutionary product within the branch of sewer cleaning and inspection.

It not only simplifies the daily work for the operator but also generates new opportunities and possibilities, such as:

- combination of cleaning/flushing incl. documentation and visual control
- no forced postures for the operator, better working conditions
- elimination of hazardous aerosol mist
- flexible turning - even in massive filled sewers
- inspection of large areas / properties
- prevention of further damages to the sewer and street system
- financial savings both for the operating company and client (reduced fuel consumption)

In comparison to conventional systems the Seeing North Sea Nozzle combines two separate systems into one where previously two systems were needed (cleaning truck and camera system)!

Technical details

- ▶ flexible, floating and light ¾" pressure hose
- ▶ water amount as of 220 l/m
- ▶ cable length 205 m
- ▶ feed rate up to 3 m/sec
- ▶ nozzle, camera housing and motor unit are made of hardened stainless steel
- ▶ camera module can be detached easily from the nozzle module with 4 screws and a plug connector
- ▶ shock resistant, nitrogen-filled and water resistant camera
- ▶ high performance LEDs for illumination
- ▶ nozzle can be used with process water
- ▶ due to the special nozzle contour and high amount of water the camera glass is being cleaned permanently by suction
- ▶ patent pending head joint allows 90° turning into house connections / branch pipes
- ▶ self developed hard-wearing signal cable
- ▶ daylight suitable TFT monitor
- ▶ drivable sewers from 100 - 1,800mm
- ▶ turning within seconds from main sewer (100 - 1,800mm) in house connections (100 - 1,200mm)
- ▶ deep advance into house connections up to 140m

PC-System

- ▶ long term available mainboard with Intel Core i5
- ▶ 4GB DDR 3 RAM
- ▶ Solid State HDD
- ▶ USB connections for external devices
- ▶ WLAN/LAN
- ▶ Windows 7 Professional SP1 x86
- ▶ remote support (if internet access is provided)
- ▶ Data formats:
- ▶ MPEG-4 & MKV - MPEG-2 is available as an additional payable service
- ▶ snapshots/photos from uncompressed data
- ▶ snapshots/photos from MPEG-4 files
- ▶ time and distance counter will be displayed in a fixed position

Direct comparison

Feature	„Seeing North Sea Nozzle“	Conventional systems
visual control	✓	X - only with add. camera truck
video recording	✓	X - only with add. camera truck
documentation	✓	X - only with add. camera truck
multiple turning	✓	X
inspection of large areas / properties	✓	X
house connections per day & truck	80 - 100	10 - 30
reduced fuel consumption (up to 70%)	✓	X
avoidance of further damages	✓	X
linear tracking	✓	X
manhole inspections	✓	X - only with camera truck

Get in touch with us

P&W Umwelttechnik GmbH
Stettiner Str. 3

D-26524 Hage

Managing directors: Arnold Pläsier & Christoph Wenk

fon: +49 4931 / 983 996 - 0 | fax: +49 4931 / 983 996 - 9

mail: info@pw-umwelttechnik.de

<http://pw-umwelttechnik.de>