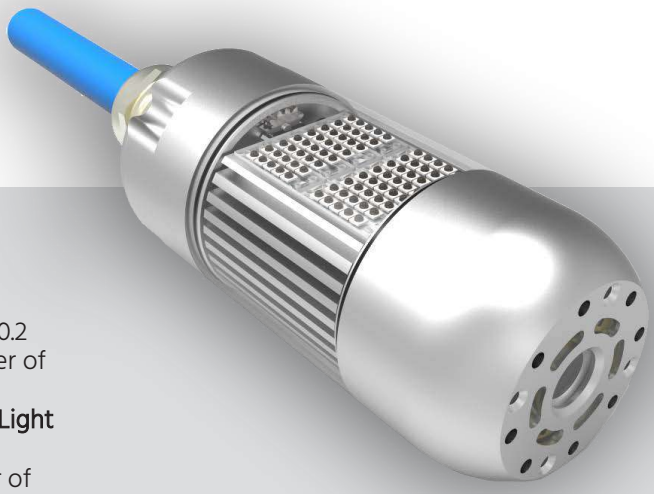
SEWERTRONICS
applied robotic engineering

SpeedyLight+

UV LED CURING TECHNOLOGY



The **SpeedyLight+ UV LED** curing system is a game changer in the sewer renovation market. Its revolutionary LED technology allows contractors to optimize their operations by increasing working efficiency at the job site up to six times. Curing speed varies from 0.2 to 1.0 m/min, depending on the LED head used and on the diameter of the pipe to be cured. Working diameters start at DN100 and the system is capable of effectively curing liners up to DN300. **SpeedyLight + UV LED** features interchangeable curing heads for better maintenance and system cost optimization. Due to the low power of LED technology, a **SpeedyLight+ UV LED** system can be powered from standard 220V mains or from any 1.2 kW electrical source.

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SpeedyLight+

UV LED CURING TECHNOLOGY

Fast laterals curing

A 7 m long DN150 lateral can be cured in 7 minutes. SEWERTRONIC's **SpeedyLight+ UV LED** curing system enhances renovation productivity.

Mobile, portable

All-in-one design allows the curing system to deploy virtually anywhere. Control unit, power supply and cable reel are integrated in one single, portable package.

90º bends

SpeedyLight+ UV LED successfully negotiates 90º bends in DN100. It's semi-rigid hose ensures a convenient push of the head along the pipe.

In Horizontal. In Vertical

SpeedyLight+ UV LED system is designed to be used in both horizontal and vertical pipes. Most laterals are horizontal, although building rehabilitation frequently involve vertical piping.

Green Technology

SpeedyLight+ UV LED protects our Environment by using less power and less energy to cure. SpeedyLiner system is styrene and amine free.

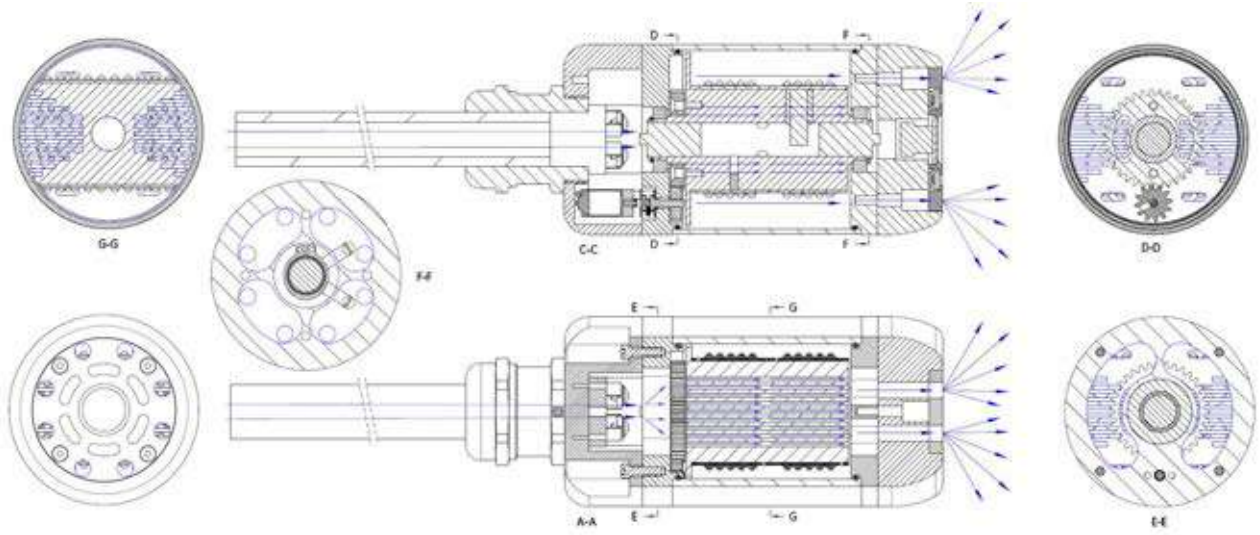
Integrated CCTV camera

The curing head has a camera whose large aperture and 170º field of view deliver a crisp image of the pipe.

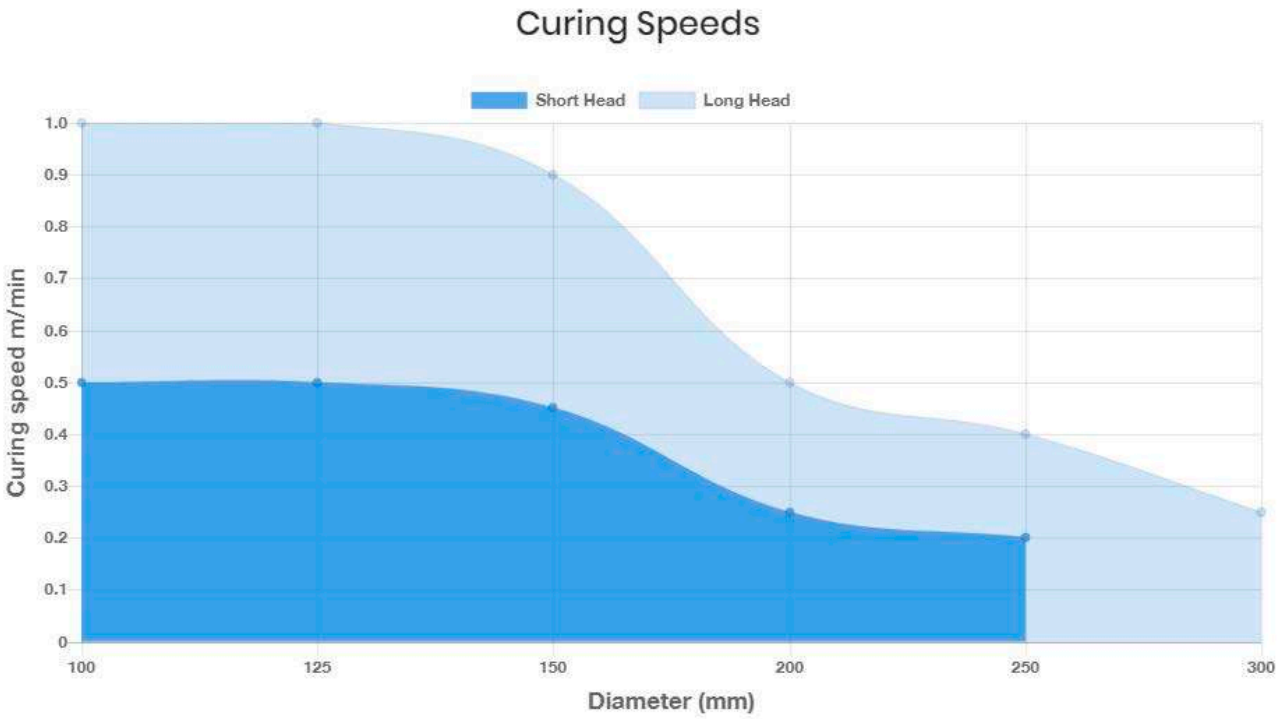
SpinLight Rotating Head

Patent pending rotating LED design, delivering x2 energy density at surface of the liner and increasing curing depth compared to static head with the same power.

SpeedyLight+ UV LED (patent pending) features the innovative rotating **Spinlight** curing head. This head has LEDs on two opposite sides only, connected by a web of cooling fins on the side. LEDs are mounted only on opposite points of a non-cylindrical housing. The rotation of the LEDs on the opposite sides generates high-energy radiation at two diametrically opposed points on the inside of the lining, increasing the UV radiation density and optimizing curing penetration. This design increases x2 the energy density at the surface of the liner, compared to static LED configurations. The isolated and concentrated assembly of the LED-bearing housing allows a higher peak performance of the product at one point of the lining and thus a hardening of thicker linings and larger pipe diameters.

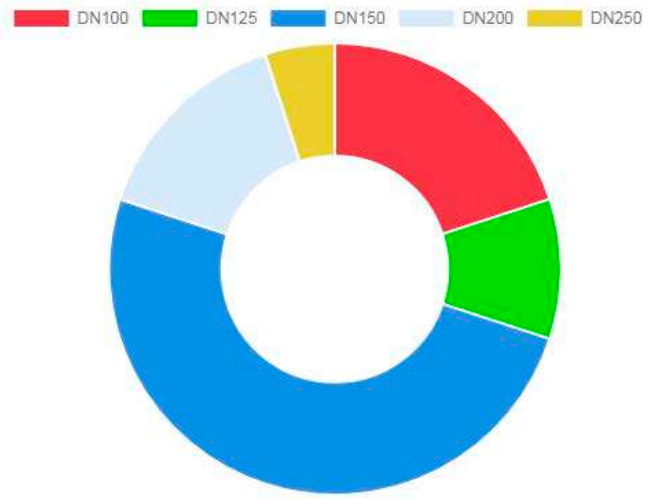


Up to 1 m/min



Laterals range

In the lateral rehabilitation market, the most common diameter is DN150 (50%), followed by DN100 (20%) and DN200 (15%). The fewest number of renovations are performed in laterals with diameters of DN125 (10%) and DN250 (5%).

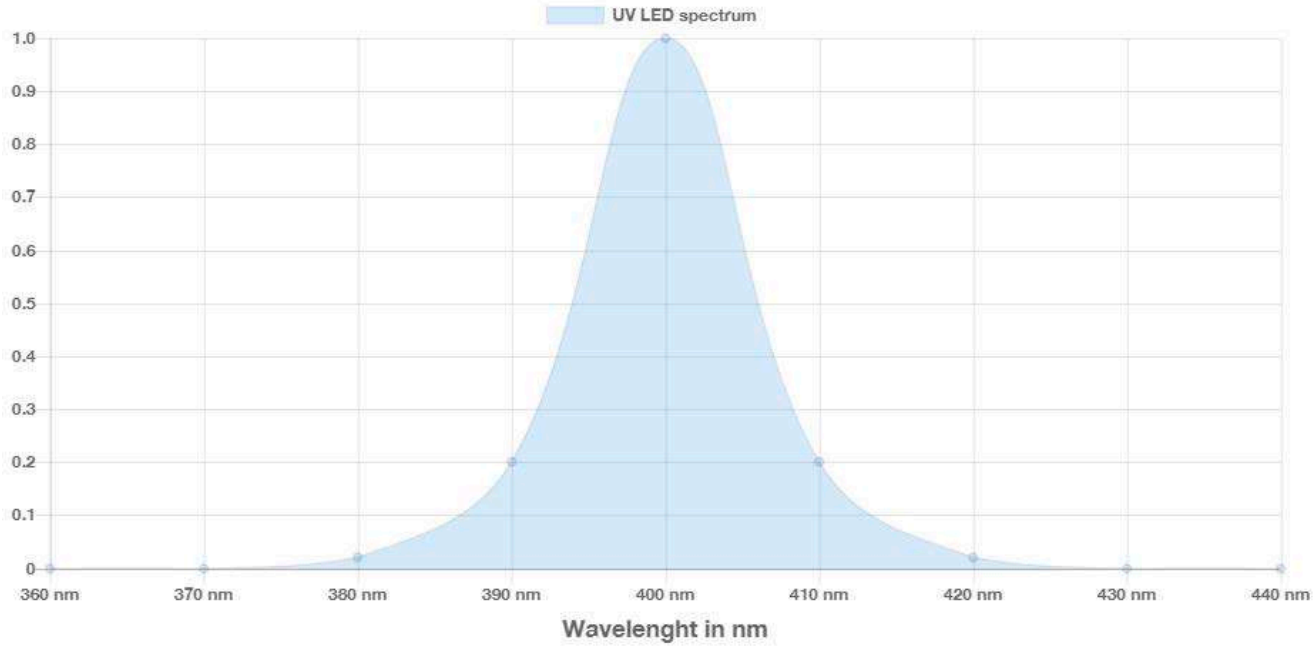


All In-one

The SpeedyLight+ UV LED system has been specifically designed to be light and compact. Its design delivers a smart package than can be easily transported. The total weight of the unit (including power supply) is less than 70 kg, and has built-in wheels.

UV curing

A high-powered LED array irradiates the impregnated liner, initiating an exothermic reaction thet cures the entire thickness of the carrier resin. The wavelength (400nm) of the LEDs ensures energy is efficiently used to cure the liner. The LED components integrated in the **SpeedyLight+ UV LED** system are lead-free and comply with RoHS legislation.



90 - degree bends

The curing head diameter is 60 mm, and is available in two different lengths: 88 mm and 120 mm. This allows the unit to negotiate 90-degree^{0} bends and several 45-degree bends even in DN100 sections. The semi-flexible 20 mm umbilical hose allows the curing head to be pushed along the pipe to the curing start point. Depending on the angle of the bend and pipe diameter, some fold lines might be produced on the liner surface.

Laterals - verticals

The **SpeedyLight+ UV LED** system is designed to be used in both horizontal and vertical pipes. Horizontal pipe use is most common in sewer lateral connections, where diameters range from DN100 to DN300. The system is also used to renovate vertical pipes in buildings or drain lines, where minimizing downtime is critical.

Green Technology

SpeedyLight+ UV LED technology helps protect our environment. It uses less energy to cure every metre of liner, and it uses resin that is styrene and amine free. Light technology is helping the industry to protect our Environment in various ways.

What else at the job site?

The SpeedyLight+ system does not change the way CIPP companies work.

First, the liner is impregnated using the traditional tools found in this industry: impregnation tables, either electrical or manual. Then, the liner is placed in the host pipe using an air-pressurized inversion drum. The use of a pre-liner is recommended. And finally, the SpeedyLight+ system is used to cure the liner.

Open-ended Rehabilitation

The rehabilitation can be done from one end of the pipe.

It is also possible to work with an open-ended liner. In situations where the second manhole is not accessible, the rehabilitation can be done from one end of the pipe using a dedicated transparent hose. Being transparent is essential so that the UV radiation is not blocked by the hose.

The resin. The liner.

Synthetic polyester felt carrier, impregnated with styrene-free vinyl ester resin.

SEWERTRONICS™ resin and liner system consists of a synthetic polyester felt carrier impregnated with styrene-free vinyl ester resin. The liner is coated with polyurethane, giving the material the necessary flexibility for smooth and easy-to-use installation. At the same time, polyurethane polymer offers a good degree of long-wave UV light transmission.

Liner can be impregnated either at the job site or at the customer's impregnation facility. In both cases traditional impregnation tables can be used. The styrene-free vinyl ester resin is supplied in one component, so there is no need to mix resin and hardener, avoiding additional work and dosing risks. The chemistry of the resin includes a special component, a photoinitiator sensitive to long-wave (400 nm) ultraviolet light.

SEWERTRONIC offers impregnation services at the customer's request.

Integrated CCTV camera.

CCD camera combines a large aperture lens.

The curing head's CCD camera combines a large aperture lens, 170-degree field of view and a 3000 mW LED ring to delivers a bright, sharp image. The camera's only purpose is to support the curing process and is not designed to replace a CCTV inspection system.

Y-connector.

This element is connected to the inversion drum by a Storz coupling.

The system also includes a Y-connector. This element is connected to the inversion drum by a Storz coupling, allowing introduction of the LED curing head inside the pressurized pipe. Plastic seals make sure no air pressure is released.

Maximum curing length.

The standard length is 50 m, and extended length is 100 m.

The system is available with two different cable/hose reels. The standard length is 50 m, and extended length is 100 m. In contrast to heat-cured solutions, UV cure time corresponds directly to length.

UV LED Curing Advantages

UV LED technology, with its lower power consumption and increased efficiency, makes it possible to increase curing speed, improving the overall productivity of the process. UV LED curing technologies are destined to replace traditional lamp-based systems. **SEWERTRONICS** is committed to this change and provides its development team with the necessary resources to accelerate this transition.

FAST Up to 1,3 m/min Up to 6 jobs/day	**NO HEAT** No hot water or steam boiler	**NO SMELL** Styrene-free vinyl ester resin
FLEXIBLE Negotiates 90° and 45-degree bends	**LESS** Than 50% energy involved. Total power < 1,2 kW	**INCREASE** Safety by reducing work time and risk factors
VERTICALS Works in both horizontal and vertical pipes	**LESS** 2 x Less Energy involved	**LOW** Curing head temperature