

Curing parameters for Brandenburger Liner BB^{2.5}



Brandenburger

SEWERTRONICS LED

Diameter [mm]	150	200	250	300	350	400	450	500	550	600	700	800	900	1000
Light source	SpeedyLight+ 1800 Watt									LED Rig 2400 Watt				
Inner pressure [mbar]	500 - 600						400 - 500			250 - 400			200 - 250	

Lamp ignition intervals [sec]	Start the LED head and Keep a standing time of 5 minutes	Start the LED head and Keep a standing time of 5 minutes	Start the LED head and Keep a standing time of 5 minutes
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	Average Wall thickness [mm]	150	200	250	300	350	400	450	500	550	600	700	800	900	1000
Maximum speeds [m/min]	3,0	x	x	x	≤ 0,50	≤ 0,45	≤ 0,40	≤ 0,35	≤ 0,30	≤ 1,00	≤ 0,90	x	x	x	x
	3,5	x	x	x	≤ 0,45	≤ 0,40	≤ 0,35	≤ 0,30	≤ 0,25	≤ 0,90	≤ 0,80	x	x	x	x
	4,2	≤ 0,40	≤ 0,60	≤ 0,50	≤ 0,40	≤ 0,35	≤ 0,30	≤ 0,25	≤ 0,20	≤ 0,80	≤ 0,70	≤ 0,70	x	x	x
	4,9	x	≤ 0,55	≤ 0,45	≤ 0,35	≤ 0,30	≤ 0,25	≤ 0,20	≤ 0,15	≤ 0,70	≤ 0,60	≤ 0,65	≤ 0,50	x	x
	5,6	x	≤ 0,50	≤ 0,40	≤ 0,30	≤ 0,25	≤ 0,20	≤ 0,15	≤ 0,10	≤ 0,60	≤ 0,50	≤ 0,60	≤ 0,45	x	x
	6,3	x	≤ 0,45	≤ 0,35	≤ 0,25	≤ 0,20	≤ 0,15	≤ 0,10	≤ 0,05	≤ 0,50	≤ 0,40	≤ 0,55	≤ 0,40	x	x
	7,0	x	x	x	x	x	x	x	x	x	x	≤ 0,50	≤ 0,35	x	x
	7,7	x	x	x	x	x	x	x	x	x	x	≤ 0,45	≤ 0,30	x	x
	8,4	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	9,1	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	9,8	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	10,5	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	11,2	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	11,9	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	12,6	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Important information:

The **curing speed** is influenced by the pipe geometry, the wall thickness of the liner, the used UVA light sources (distance from the liner, intensity of radiation, etc.) and the specific construction site conditions (water, temperature, material of the pipe to be rehabilitated, etc.) The stated values are **recommended guidelines** for a maximum curing speed. It is the obligation of the person responsible for the installation to adapt the curing speed to the site conditions.

When curing liners with vinyl ester resin, the speed has to be reduced by 30 - 35 %.

The stated **inner pressures** are minimum and maximum values and have to be complied with.

The drawing speed is a guide value for starting the process. The drawing speed must be slowed down if the continuously measured process temperature on the inner wall of the liner falls below 80°C. An ideal value is continuous 100 - 140°C. In individual cases, such as liners with low wall thickness (e.g. 3 mm), the 80°C may not necessarily be reached - this applies in particular in damp attitudes. In this case, 70°C can be assumed as a sufficient guide value for the temperature without qualitatively affecting the curing result.

These values are not part of the contract; the values are based on general experiences and are continuously to be registered during the curing:

-After igniting the last lamp a holding time of at least 2 to 5 minutes according to the diameter of the liner has to be observed. The achievement of the contractually specified purpose and the contractual requirements of the liners depends to a large extent on the correct installation of the liners in the old pipe. Unless expressly agreed otherwise, we will not be involved in the installation of the liners. In this case, we have no insight into the execution of the installation. In the event of the assertion of any warranty claims, it is necessary for us to check the correct installation of the liner in order to be able to assess the damage and any possible cause of damage due to incorrect installation. It is therefore the customer's responsibility to ensure proper, accurate and complete documentation of the installation of the liner.

- 0,0 m - 0,5 m the speed to start with 0 - 20 cm/min
- 0,5 m - 2,0 m the speed can be increased up to 50 % of the indicated maximum speed
- from 2,0 m the speed can be accelerated up to 100 % (of the recommended maximum speed)
- Shortly before reaching the last 2 metres the speed has to be reduced again in reversed order as described before.

Distance in m:	0,5 m	0,5 m - 2,0 m	2,0 m - (X - 2) m	2,0 m - 0,5 m	0,5 m - Ende
Curing speed in cm/min:	10 - 20 cm/min	50 % V _{max}	100 % V _{max}	50 % V _{max}	10 - 20 cm/min