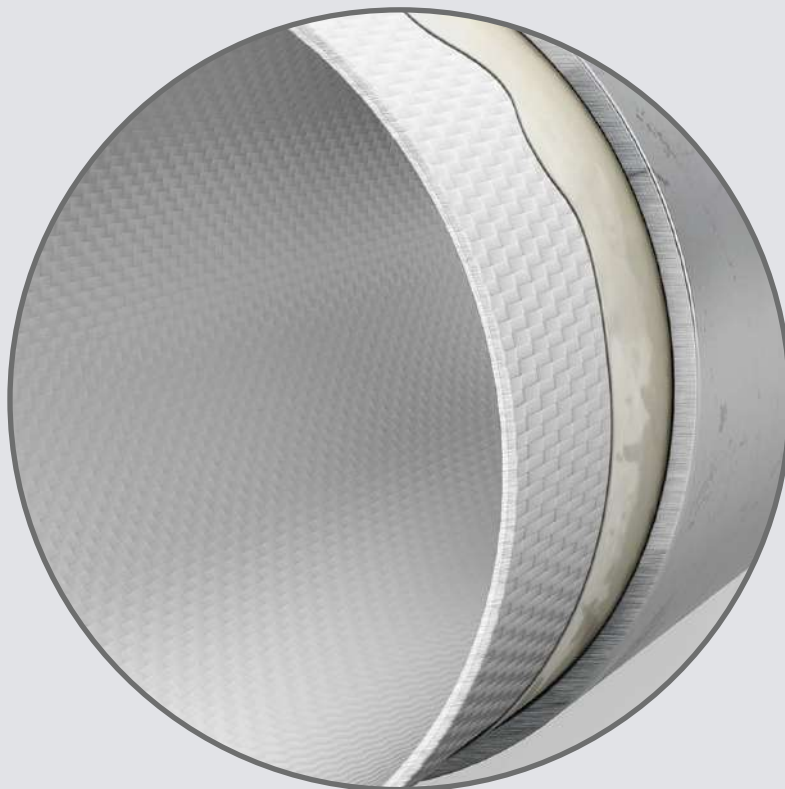


# AMEX SANIVAR

## Installation Manual SaniLine®



Amex Sanivar AG  
Neustraße 19  
4623 Neuendorf / Switzerland  
T +49 171 610 11 31  
M [sales@amex-sanivar.com](mailto:sales@amex-sanivar.com)

# AMEX SANIVAR

## Installation Manual

SaniLine®

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## Company details

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Amex Sanivar® is a Swiss-German company that has specialized in trenchless pipe rehabilitation for over 40 years. Amex Sanivar® combines the bespoke nature of a family owned business, with the growing need to become an international supplier. This allows the company to build customer-centric solutions and handle difficult conditions. This innovative, forward-thinking approach forms the basis of our future.

For more information, contact us at:

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4623 Neuendorf / Switzerland

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M sales@amex-sanivar.com  
amex-sanivar.com

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## Product details

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SaniLine® is a high resistant PET - multifilament yarn hose with a polyurethane or polyethylene coating that is used to rehabilitate pressurized pipes for: potable water, industrial water, sewage, petrol, oil, and gas. With a flexible liner, and a strong but flexible adhesive, SaniLine® can navigate 90 degree bends, withstand operating pressures of up to 16 bar, uses a cold curing method that doesn't require extra UV or other curing machinery, is environmentally friendly, and is a long lasting solution.

The rehabilitation system SaniLine® is certified after the DVGW- (German Association for Water and Gas trades) DIN 30658-1, guideline W270 and the coating guideline KTW from the national environmental agency in Germany. These certificates prove, amongst others, the following properties of the liner:

- Impermeability
- Durability against wastewater
- Chemical durability
- Potable water safe
- 50 year design life
- Resistance to vacuum

Since SaniLine® is a semi-structural element, load bearing capacity has to be provided by the existing pipe. Further information concerning dimensions, material components and mechanical properties are provided in the SaniLine® Specifications sheet.

This installation manual provides a step-by-step guidance for the rehabilitation of pipes using SaniLine®. A correct implementation of this manual is the responsibility of the on-site team and the site supervisor. For the guarantee to be considered valid, this manual must be followed exactly, with all proper documentation completed and returned to Amex Sanivar® after each installation.

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## Certifications

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All Amex Sanivar® seals and liners maintain the highest quality and environmental standards according to ISO 9001 and ISO 14001:1. SaniLine® maintains certificates and approvals from the DVGW, SVGW, KTW, ACS, Hygiene Institute Moscow, and the Australian AS4020. It has also successfully passed tests according to DIN 14811, and DIN EN 14811:2008-01, and DIN 30658-1. Additional tests have been successfully completed that cover gas, jet fuel, pressure tests, and abrasion tests.

## Requirements

Installation must be completed by or under an Amex Sanivar® certified installation team. Installation by any other individual is against company policy and can affect the validity of any guarantee. Please contact Amex Sanivar® for certification requirements. To carry out a proper installation, the following criteria must be met:

- The pipe should be under pressure or the external pressure can not exceed the internal pressure.
- The maximum operating pressure of the host pipe is below 35 bar
- All bends and house connections are accounted for
- A maximum of 350m of SaniLine® can be pulled into the host pipe, with the average pull length of one trench being approx. 200m
- The pipe is circular and made of one of the following: steel, ductile, cast-iron, steel reinforced concrete, in-situ concrete, PVC, AZ, GRP, clay or PP.
- The proper equipment has been obtained from Amex Sanivar® and is clean and ready for use
- The required liner length is determined based on the pipe diameter and the number of bends. The maximum installation length in relation to the diameter is shown in the table below:

Pipe diameter	Approx. max installation length	Pipe Bends
DN80 - 150	150	30°
DN200 - 300	250	40°
DN350 - 500	250	45°
DN550 - 800	200	50°

Note: The occurrence of wrinkles is unavoidable in cases of sharp bends. However, there is no negative impact on the performance of the pipe in such instances.

## Safety

All installers and on-site operators must be trained and competent in all of the required equipment and must follow all instructions from the safety lead. As with any job site, the area must be cleared of all ground level obstructions, and tools and equipment must be returned to their proper place after use.

### The main hazards present on a job site are:

- Injury from slips, trips and falls
- Disease from standing/stagnant water
- Injury to members of the public during operations
- Injury from incorrect manual handling of equipment
- Ill health from breathing solder fumes
- Injury to other contractors during works
- Injury from machine and tool hazards
- Working at height
- Possible presence of asbestos

### Preventive measures you must take:

- You must NOT carry out this task alone
- Erect barriers at entrances and around the work area, if deemed necessary by the foreman or safety officer to protect tenants
- You must not lift beyond your capabilities - get help if necessary
- Visitors and other members of staff are prohibited from entry unless accompanied by a competent person. All visitors must be issued with personal protective equipment

- ☑ You must read and be familiar with the Safety Data Sheets for the installation for SaniTube®, which contains first aid, firefighting, and accidental release measures.

## Transportation and storage

SaniLine® is transported from the manufacturer in factory-sealed packaging by a haulage company with an appropriate quality management system. It is sent using a metal drum or wooden wheel. Upon receipt of the liner, an inspection must be conducted. If any damage is noticed, the receiver must notify Amex Sanivar® and the courier immediately. In cases when the recipient notices damage is substantial, the receiver should reject the shipment.

At the job-site, the liner must be stored and protected from sun and rain. When unpacking the liner, exercise caution, especially regarding unloading equipment such as fork lifts.

## Planning the job

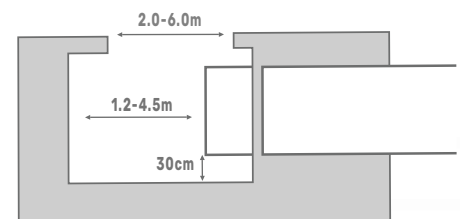
SaniLine® is produced in dimensions of DN80 up to DN800. Planning a proper job requires:

- ☑ Determining the medium and which SaniLine® should be used
- ☑ Measuring the pipe's internal diameter
- ☑ Understanding any changes in size throughout the pipe
- ☑ Clarifying the number of bends and the degrees of each bend
- ☑ Determining the length of the pipe
- ☑ Establishing sufficient access points
- ☑ Confirming if house connections need to be re-established, and, if so, how many and where
- ☑ Determine the inversion pressure required based on the maximum pipe ID and the minimum required inversion pressure.

## Site survey and excavation

Prior to installation, a site survey and excavation must be conducted. This includes double checking all documentation, the dig location, equipment, and material. Then the working pits must be dug, with the locations of all T-sections and service connections, valves and other pipe attachments must identified and dug as well. This includes removing all house connections and sealing the holes with duct tape. It is important to note that any connection of any kind that intrude into the pipe must be removed. The width of the working pits is recommended to be between 2-6m. There should also be a 30cm gap between the bottom of the host pipe and the ground. Excavation length and pipe cut-outs are dependent upon pipe diameter and should be:

Pipe diameter	Excavation length	Pipe cut-out
DN80 - 100	2.0m	1.2m
DN125 - 200	2.5m	1.5m
DN250 - 300	3.0m	2.0m
DN350 - 450	4.0m	2.5m
DN500 - 600	5.0m	3.0m
DN650 - 800	6.0m	4.5m



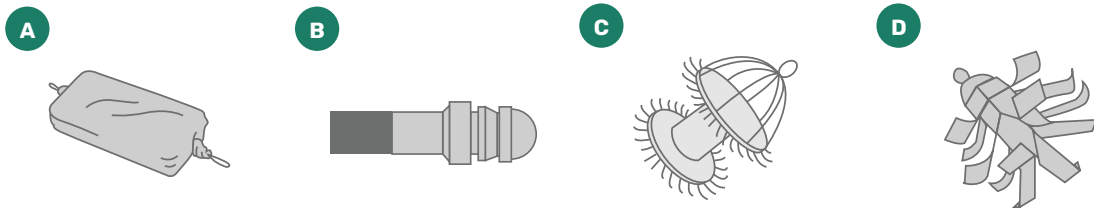
The following factors need to be documented for each job at the time of the site survey:

- ☑ The proper size and length of SaniLine® has been delivered
- ☑ All supporting documentation is gathered and the installers have inspected the job-site
- ☑ All proper equipment is at the job-site and operational
- ☑ The pits have been properly dug and the pipe is cut, and any valves, reductions, etc. have been removed

## Pipe preparation and cleaning

Cleaning of the pipe should involve equipment such as brushes, scrapers, pigs and calibration pistons. For severe incrustations or heavy mud sediments, water jetting may be required.

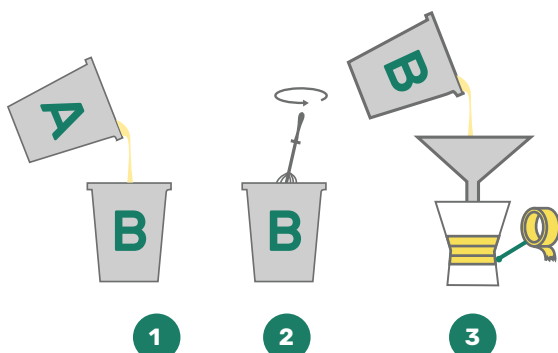
- ☑ Provide a rope connection using a pig/plastic bags, or a foil parachute, by means of vacuuming or blowing with a compressor
- ☑ Pull scrapers (D) and brushes (C) through the pipe with a winch while letting the vacuum/air compressor system continue to run
- ☑ Be aware not to use too many scrapers and brushes behind each other
- ☑ In case of heavy incrustations, starting with small scrapers/brushes is also recommended, while gradually increasing the size when incrustations are heavy
- ☑ In the case of severe sediment, utilise a high-pressure water-jetting unit with a rotating nozzle (B). The pressure required may be approximately 250 bar.
- ☑ Closed Circuit TV (CCTV) inspections can be carried out if required
- ☑ Make sure the pipe is sufficiently dry. To do so, wrap a pig or pillow with fabric and pull it through the pipe. If the fabric is dry or only slightly damp, then the host pipe is dry enough. If the fabric is wet, then host pipe must be dried further. \*Note: In the case of an asbestos pipe, a thorough drying is necessary.



## Installing SaniLine®

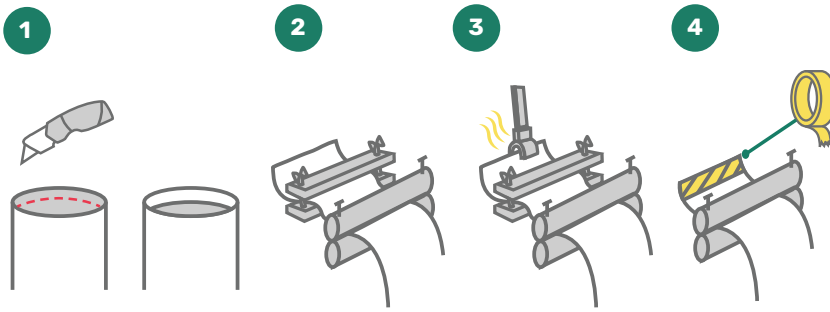
Installing SaniLine® begins with mixing the two-component adhesive and pouring it into the liner. This is then spread throughout the liner by pulling the liner through the mangle to the pressure drum, back to the wheel, and finally back to the pressure drum. The pressure drum is then closed, and transported to the entry pit, where the pressure hose is connected to the gate valve and the inversion head. The liner is pulled through the pressure hose and inverted - by hand - and secured onto the inversion head. SaniLine® is finally inverted through the pipe and then stopped at the other end, before being cut, pressurized and allowed to cure. The following steps must be followed exactly:

- ☑ The pressure drum and wheel holding the SaniLine® are brought to face each other with rollers inbetween to assist the liner when the adhesive is being spread
- ☑ The adhesive is brought to the site, poured, and mixed - after which it is poured into the liner
- ☑ Refer to the adhesive consumption tables in the Appendix for more details



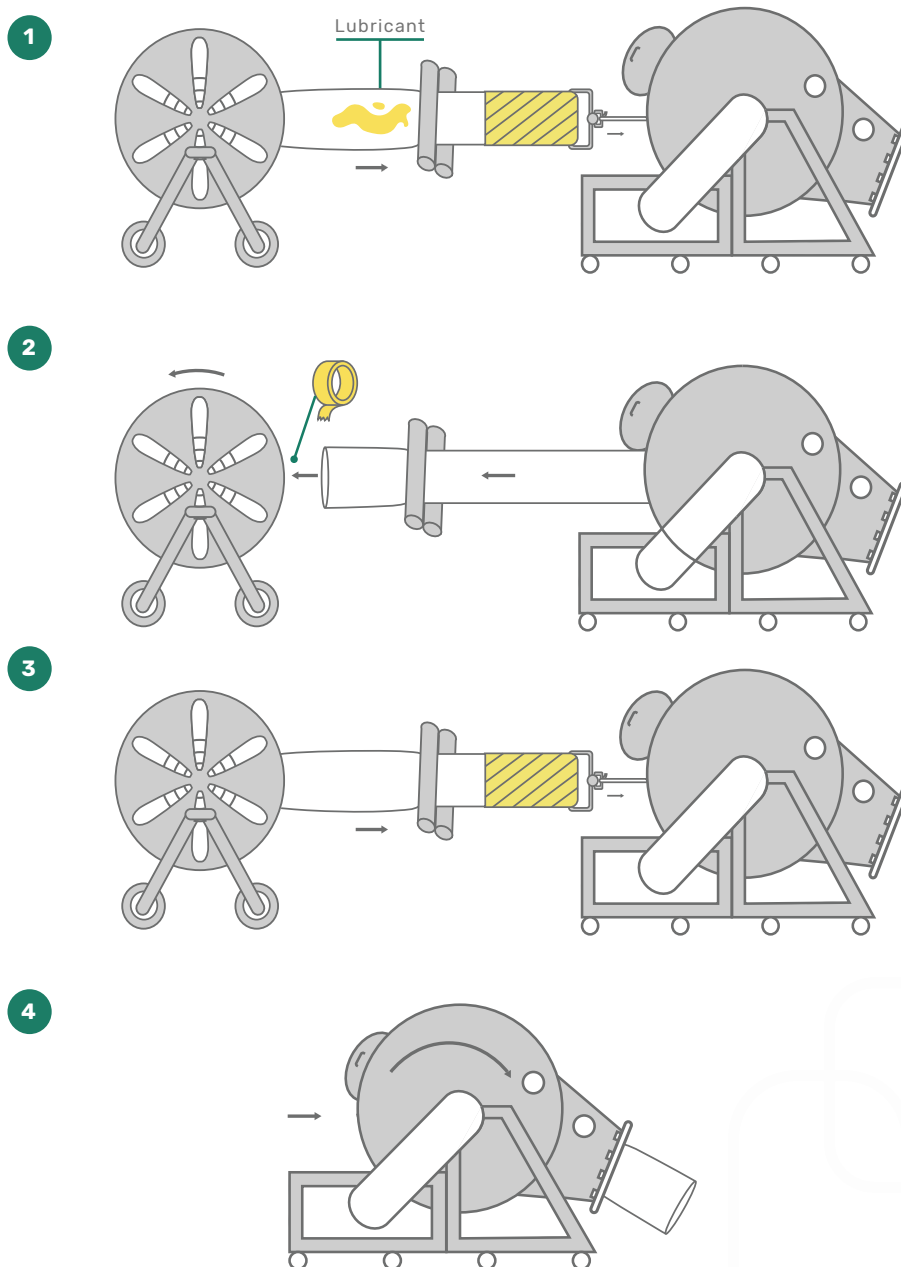
Temperature	Pot life DW3000 for water	Pot life G2000 for gas
7°C	8 hrs	12 hrs
17°C	4 hrs	6 hrs
27°C	2 hrs	3 hrs
37°C	1 hr	1.5 hrs

- ✓ The liner is cut back to expose the coating, pulled through the mangle, clamped, and sealed shut with an iron. This is then taped and attached to the winch.

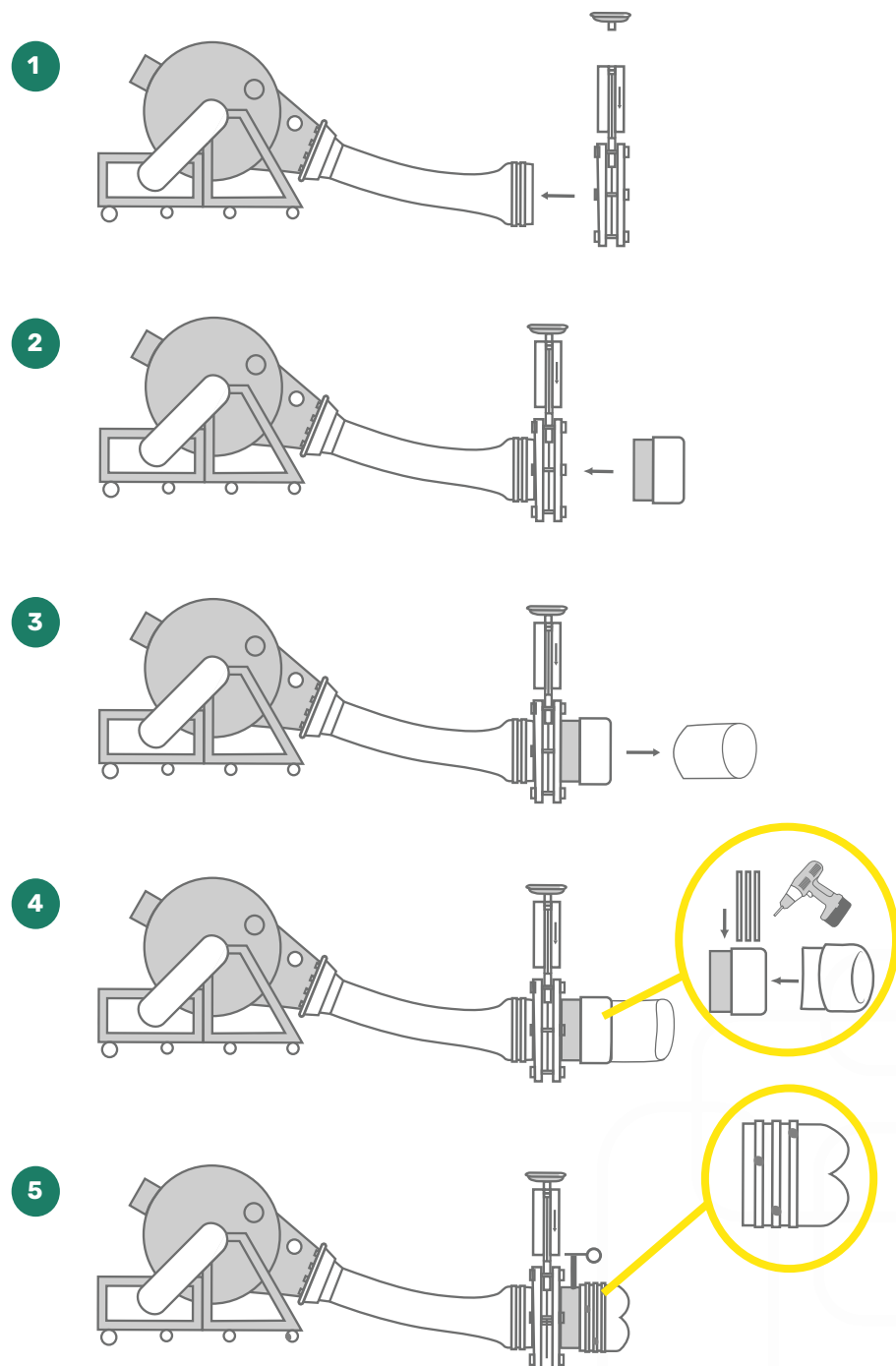


SaniLine® size	Gap in mangle
DN80	4mm
DN100-175	4.5mm
DN200-550	5mm
DN600-800	6.5mm

- ✓ To make sure the adhesive is equally spread across the inside of the liner, the liner is pulled from the wheel to the pressure drum, back to the wheel, and finally back to the pressure drum, where the door is closed.



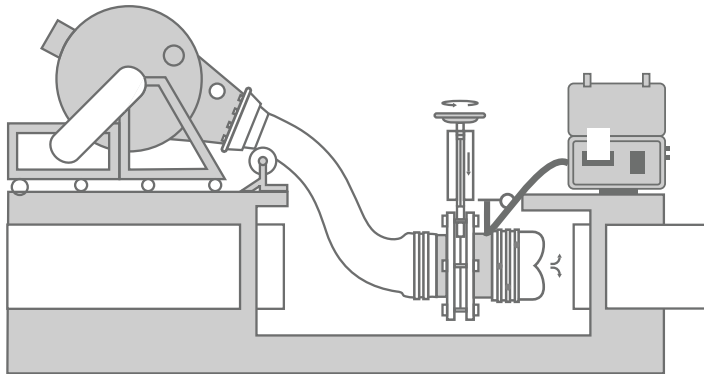
- ☑ The pressure drum is transported to the entry pit
- ☑ The pressure hose is rolled out and layed flat
- ☑ The gate valve is then attached to the pressure hose
- ☑ The inversion head is fixed to the gate valve
- ☑ The liner is pulled through the pressure hose, gate valve, and inversion head
- ☑ The liner is then inverted onto the inversion head by hand, and held in place with 3 metal bands. The metal bands must be on the sealing lip of the inversion head, with the bands being secured in an alternating pattern. For example, one connection point is closed at 3 o'clock, one at 9 o'clock, and the third at 12 o'clock
- ☑ The inversion head with gate valve is then moved to the host pipe -sometimes the inversion head must be supported with wood shims to make sure it is level and even with the host pipe
- ☑ Connect the pressure reader to the inversion head and begin the inversion protocol, making sure to record the inversion pressure throughout.





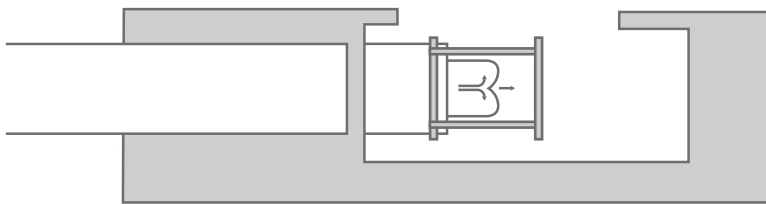
- ☑ The pressure drum is then started, slowly pushing the liner into the host pipe. Once the liner has entered the host pipe, the pressure is increased so that the liner moves through the pipe at 2-3m/min. In order to determine the right pressure required to invert SaniLine®, consult the table below. If there are step changes in the host pipe, always invert SaniLine® at the higher pressure to ensure that SaniLine® can adhere to the host pipe in all sections. Do not attempt to stretch the liner by more than 10%.
- ☑ During the inversion process, the pressure drum is monitored, as well as the exit pit for the liner.
- ☑ At the exit pit, the liner is inverted until it reaches the end of the stopping brace, the gate valve is closed at the entrance pit, and a blank cap is mounted on the gate valve.

1



SaniLine® size	Inversion pressure
DN80-100	2-3 bar
DN150-200	1-2 bar
DN250-450	0.5-1 bar
DN500-800	0.5-1 bar

2



**CHOOSING THE RIGHT PRESSURE: EXPANSION OF THE LINER UNDER PRESSURE (MM)**

	S*(2)	0 BAR	0.1 BAR	0.3 BAR	0.5 BAR	MASS [G/M]
80 MM	1.5-1.7	78.3	78.6	80.5	82.1	CA. 332 G/M
100 MM	1.5-1.7	97.0	98.0	101.5	104.7	CA. 377 G/M
200 MM	2.2-2.4	194.2	198.0	280.9	216.5	CA. 1022 G/M
300 MM	2.2-2.4	293.9	300.6	314.6	321.9	CA. 1597 G/M
400 MM	2.6-3.0	386.6	395.2	413.3	421.9	CA. 2210 G/M
500 MM	2.6-3.0	491.4	506.6	529.0	540.0	CA. 2904 G/M
600 MM	2.8-3.2	570.3	576.1	599.6	611.1	CA. 4230 G/M
700 MM	2.8-3.2	669.41	679.01	713.1	835.4	CA. 5350 G/M
800 MM	3.0-3.4	763.65	774.62	815.17	835.64	CA. 6200 G/M

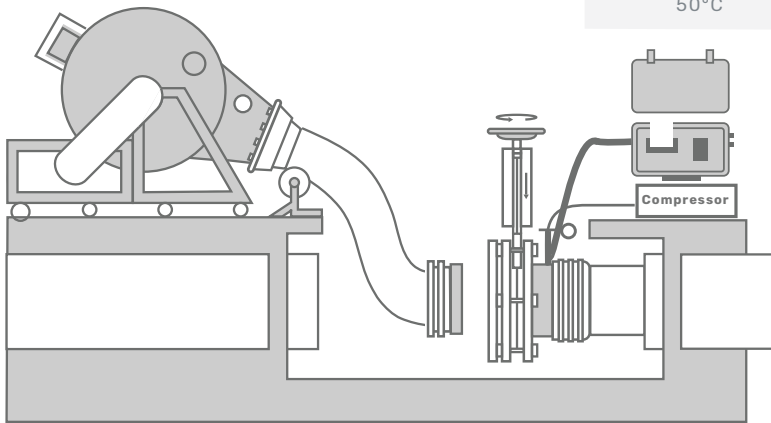
(1) Tolerance +/- 1/2mm for up to DN 200 and +/-2/3mm for DN 300 and 400

(2) Wallthickness of liner +/-0,3/0,4mm

\*Note: As an example, the host pipe has an internal diameter of 595mm, and for this particular pipe, the required pressure is 0.3 bar. But, across the length of the pipe, the maximum internal diameter that must be reached is 610mm. In this case the inversion pressure AND curing pressure must be 0.5 bar from the start of the inversion to the end of the curing.

- ☑ The pressure is monitored for an hour, and, if the pressure maintains, it is left for 1-2 days depending on the outside temperature to cure. The pressure required to invert the SaniLine® must be maintained during this time.

Temperature	Curing time DW3000 for water	Curing time G2000 for gas
10°C	4 days	2 day
20°C	2 days	1 day
30°C	1 day	12 hrs
40°C	12 hrs	6 hrs
50°C	6 hrs	3 hrs



## Final steps

After curing, the testing pressure is checked and noted and the air is released. House connections are re-instated, rivets are installed, and the house connections are tested for tightness by applying a pressure of 100mbar. If they exist, leaks are noted and reported to the client. Then, a cutter is used to cut open in-service house connection and reconnect them to the system. For more information on re-connecting house connections, see the Appendix.

- ☑ Check and note the testing pressure via the pressure reader and release air through the taps at the inversion head
- ☑ At the end pit: cut liner and use the retaining band to remove the remaining liner piece

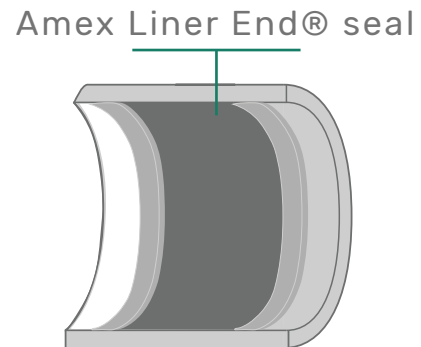
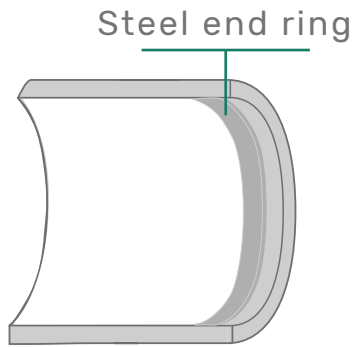
### After this, the liner end is sealed, following these steps for the liner end ring:

- ☑ Take the end ring and cut it
- ☑ Place it inside the pipe on top of the end of the liner
- ☑ The ring will overlap - mark the point at which it just fits without overlapping +5mm
- ☑ Cut the ring to correct size
- ☑ Make sure both sides of the end ring are in a perfect 90° angle
- ☑ Insert the ring into the pipe again
- ☑ Put the expansion tool in place
- ☑ Expand the expansion tool while simultaneously hammering the end ring in order for the ring to settle
- ☑ Once the ring is fully expanded and has fully settled (once the ring firmly sits on the liner)
- ☑ Insert the fitting piece
- ☑ Puncture the joint between the fitting piece and the ring - this will make sure the fitting piece is firmly fixated
- ☑ Cut back the end of the liner at the edge of the ring

- ☑ Apply silicone to the end of the liner - important: seal the side of the liner in a way that water can not get in contact to the woven jacket

**For sizes larger than DN200, an Amex Liner End® seal is used:**

- ☑ The seal is first placed in the pipe, with the end of the seal coming flush with the host pipe
- ☑ The steel bands are then inserted and expanded one at a time using the hydraulic tool
- ☑ Shims are knocked into place under the hydraulic tool
- ☑ The hydraulic tool is removed, and pressure tests are carried out.



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# Documentation

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The installation must be documented with all relevant steps into the on-site form provided by Amex Sanivar®. The document must be archived so that any arising defects can be targeted and suitable corrective measures can be taken. The storage period for such documents corresponds to the warranty period and lasts at least 5 years.

The following factors must be documented for each job:

## 1. Preparation

- Differences in the inner diameter (dimension changes)
- Directional changes (bends)
- Pipe offsets and joint gaps
- Connections
- Root ingrowth
- Groundwater infiltration
- Drain obstacles
- Deformation
- Deposits / contaminations
- Damage pattern
- Operating pressure
- Operating temperature
- CCTV inspection of damage and pipe condition

## 2. Post-installation documentation

- Course report (Report FB-15 "Report SaniLine")
- Job Site Report

## 3. Quality assurance

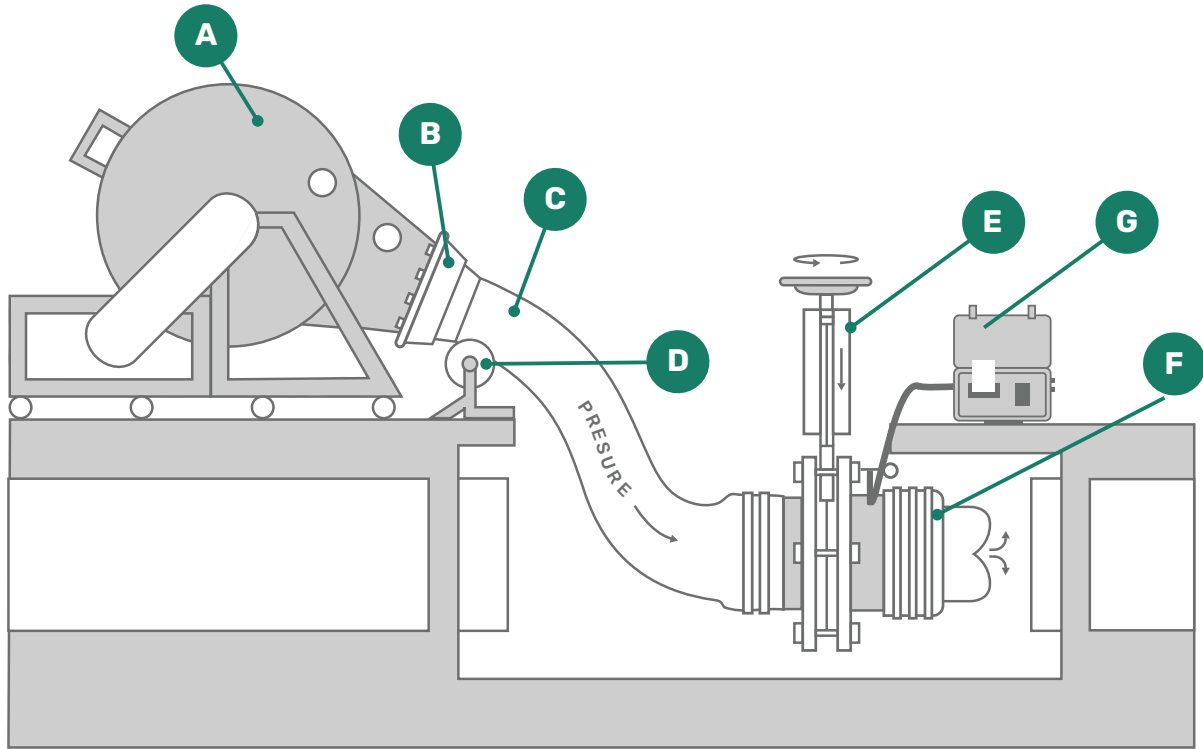
- Installation Manual must be followed exactly
- Proper pressure tests must be completed and documented after installation
- Pressure of inversion (bar) must be recorded throughout the inversion process

# Appendices

## Equipment list

The installer needs all equipment mentioned here to properly install SaniLine®. It is important to note that measuring and recording devices must be reviewed and calibrated regularly.

Additionally, the installer has to wear his or her PPE (Personal Protective Equipment). The PPE consists of: helmet, safety shoes, gloves, safety suit.



### LEGEND

**A** Pressure Drum

*The Pressure Drum is used to invert the liner through the host pipe.*

**C** Pressure Hose

*The Pressure Hose provides the connection between the Pressure Drum and the host pipe.*

**E** Gate Valve

*The Gate Valve gate valve allows to close off the finished section to keep the pressure on during the curing process..*

**E** Pressure Reader

*Pressure reader is used to record the inversion pressure throughout the installation process..*

**B** Reducers

*Reducers allow a seamless connection between the Pressure Drum and the Pressure Hose.*

**D** Roller

*The Roller protects the Pressure Hose from the ground.*

**F** Inversion Head

*The Inversion Head is used to allow the pressure from the Pressure Drum invert the liner.*

# AMEX SANIVAR

## FB 15 Report SaniLine®

### Site information

Location \_\_\_\_\_  
Street \_\_\_\_\_  
Section \_\_\_\_\_ to \_\_\_\_\_  
Section No. \_\_\_\_\_  
Total length \_\_\_\_\_ m  
Total length of bridging \_\_\_\_\_ m  
DN \_\_\_\_\_  
Material \_\_\_\_\_  
Internal diameter at beginning \_\_\_\_\_  
Internal diameter at ending \_\_\_\_\_  
Temperature of air \_\_\_\_\_  
Temperature of ground \_\_\_\_\_  
Weather \_\_\_\_\_

### Material information

Liner No/ \_\_\_\_\_  
Charge-No. \_\_\_\_\_  
Length of liner \_\_\_\_\_ m  
Adhesive type \_\_\_\_\_  
Basis \_\_\_\_\_ kg charge No. \_\_\_\_  
Hardener \_\_\_\_\_ kg charge No. \_\_\_\_  
Ration used to mix \_\_\_\_\_  
Accelerator \_\_\_\_\_ ml/26kg  
charge No. \_\_\_\_\_

### Installation information

Date of renovation \_\_\_\_\_  
Type of pollution \_\_\_\_\_  
Way of cleaning \_\_\_\_\_  
TV inspection after cleaning? \_\_\_\_\_  
Width of grinder opening \_\_\_\_\_  
Inversion pressure \_\_\_\_ min \_\_\_\_ mbar  
\_\_\_\_ max \_\_\_\_ mbar  
Inversion time \_\_\_\_\_  
Pressure test \_\_\_\_\_ bar  
from \_\_\_\_ / \_\_\_\_ h to from \_\_\_\_ / \_\_\_\_ h  
Mean of testing-NR \_\_\_\_\_

### Final Notes

No of endrings \_\_\_\_\_ Date installed \_\_\_\_\_  
Conductor barrels 30mm \_\_\_\_ pcs. \_\_\_\_  
36mm \_\_\_\_ pcs. \_\_\_\_  
50mm \_\_\_\_ pcs. \_\_\_\_  
No of end seals \_\_\_\_\_ Date installed \_\_\_\_\_  
Bends and number \_\_\_\_\_  
Notes \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# AMEX SANIVAR

## Adhesive consumption SaniLine® for water

	DN 80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
5 m	817	1'062	1'308	1'800	2'615	3'269	3'923	4'576	5'230	5'884	6'537	7'845
	433	563	692	950	1'385	1'731	2'077	2'424	2'770	3'116	3'463	4'155
10 m	1'635	2'125	2'615	3'600	5'230	6'538	7'845	9'153	10'460	11'768	13'075	15'690
	865	1'125	1'385	1'900	2'770	3'462	4'155	4'847	5'540	6'232	6'925	8'310
20 m	3'269	4'250	5'230	7'200	10'460	13'076	15'690	18'306	20'920	23'536	26'150	31'380
	1'731	2'250	2'770	3'800	5'540	6'924	8'310	9'694	11'080	12'464	13'850	16'620
30 m	4'904	6'375	7'845	10'800	15'690	19'614	23'535	27'459	31'380	35'304	39'225	47'070
	2'596	3'375	4'155	5'700	8'310	10'386	12'465	14'541	16'620	18'696	20'775	24'930
40 m	6'539	8'500	10'460	14'400	20'920	26'152	31'380	36'612	41'840	47'072	52'300	62'760
	3'461	4'500	5'540	7'600	11'080	13'848	16'620	19'388	22'160	24'928	27'700	33'240
50 m	8'173	10'625	13'075	18'000	26'150	32'690	39'225	45'765	52'300	58'840	65'375	78'450
	4'327	5'625	6'925	9'500	13'850	17'310	20'775	24'235	27'700	31'160	34'625	41'550
60 m	9'808	12'750	15'690	21'600	31'380	39'228	47'070	54'918	62'760	70'608	78'450	94'140
	5'192	6'750	8'310	11'400	16'620	20'772	24'930	29'082	33'240	37'392	41'550	49'860
70 m	11'443	14'875	18'305	25'200	36'610	45'766	54'915	64'071	73'220	82'376	91'525	109'830
	6'057	7'875	9'695	13'300	19'390	24'234	29'085	33'929	38'780	43'624	48'475	58'170
80 m	13'077	17'000	20'920	28'800	41'840	52'304	62'760	73'224	83'680	94'144	104'600	125'520
	6'923	9'000	11'080	15'200	22'160	27'696	33'240	38'776	44'320	49'856	55'400	66'480
90 m	14'712	19'125	23'535	32'400	47'070	58'842	70'605	82'377	94'140	105'912	117'675	141'210
	7'788	10'125	12'465	17'100	24'930	31'158	37'395	43'623	49'860	56'088	62'325	74'790
100 m	16'346	21'250	26'150	36'000	52'300	65'380	78'450	91'530	104'600	117'680	130'750	156'900
	8'654	11'250	13'850	19'000	27'700	34'620	41'550	48'470	55'400	62'320	69'250	83'100

Component A = Basis = 1.889 Unit weight

Component B = Hardener = 1 Unit weight

Two component - Adhesive SANI GW 3000 17 : 9 = 1,889 : 1

(Quantities displayed in table in grams)

(m = meters)



# AMEX SANIVAR

## Adhesive consumption SaniLine® for gas

	DN 80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
5 m	1'000	1'300	1'600	2'200	3'200	4'000	4'800	5'600	6'400	7'200	8'000	9'600
	250	325	400	550	800	1'000	1'200	1'400	1'600	1'800	2'000	2'400
10 m	2'000	2'600	3'200	4'400	6'400	8'000	9'600	11'200	12'800	14'400	16'000	19'200
	500	650	800	1'100	1'600	2'000	2'400	2'800	3'200	3'600	4'000	4'800
20 m	4'000	5'200	6'400	8'800	12'800	16'000	19'200	22'400	25'600	28'800	32'000	38'400
	1'000	1'300	1'600	2'200	3'200	4'000	4'800	5'600	6'400	7'200	8'000	9'600
30 m	6'000	7'800	9'600	13'200	19'200	24'000	28'800	33'600	38'400	43'200	48'000	57'600
	1'500	1'950	2'400	3'300	4'800	6'000	7'200	8'400	9'600	10'800	12'000	14'400
40 m	8'000	10'400	12'800	17'600	25'600	32'000	38'400	44'800	51'200	57'600	64'000	76'800
	2'000	2'600	3'200	4'400	6'400	8'000	9'600	11'200	12'800	14'400	16'000	19'200
50 m	10'000	13'000	16'000	22'000	32'000	40'000	48'000	56'000	64'000	72'000	80'000	96'000
	2'500	3'250	4'000	5'500	8'000	10'000	12'000	14'000	16'000	18'000	20'000	24'000
60 m	12'000	15'600	19'200	26'400	38'400	48'000	57'600	67'200	76'800	86'400	96'000	115'200
	3'000	3'900	4'800	6'600	9'600	12'000	14'400	16'800	19'200	21'600	24'000	28'800
70 m	14'000	18'200	22'400	30'800	44'800	56'000	67'200	78'400	89'600	100'800	112'000	134'400
	3'500	4'550	5'600	7'700	11'200	14'000	16'800	19'600	22'400	25'200	28'000	33'600
80 m	16'000	20'800	25'600	35'200	51'200	64'000	76'800	89'600	102'400	115'200	128'000	153'600
	4'000	5'200	6'400	8'800	12'800	16'000	19'200	22'400	25'600	28'800	32'000	38'400
90 m	18'000	23'400	28'800	39'600	57'600	72'000	86'400	100'800	115'200	129'600	144'000	172'800
	4'500	5'850	7'200	9'900	14'400	18'000	21'600	25'200	28'800	32'400	36'000	43'200
100 m	20'000	26'000	32'000	44'000	64'000	80'000	96'000	112'000	128'000	144'000	160'000	192'000
	5'000	6'500	8'000	11'000	16'000	20'000	24'000	28'000	32'000	36'000	40'000	48'000

Component A = Basis = 4 Unit weight

Component B = Hardener = 1 Unit weight

Two component - Adhesive SANI G 2000 + SANI G 2001 4:1

(Quantities displayed in table in grams)

(m = meters)