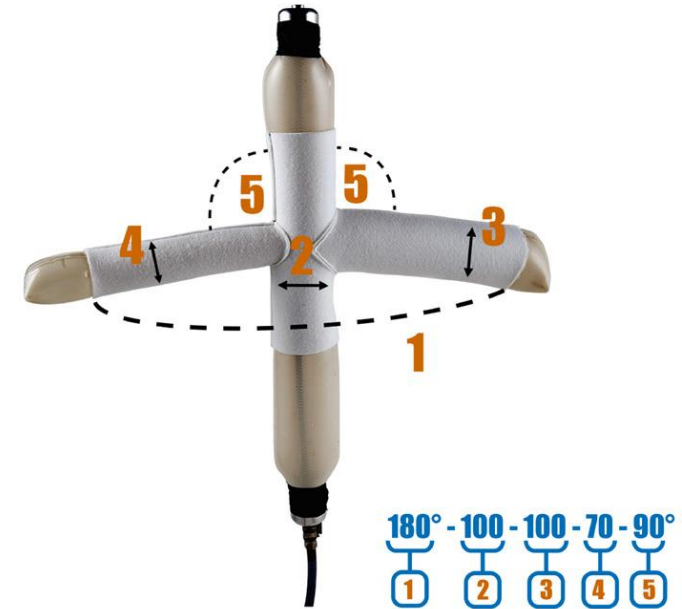


INSTALLATION OF CONNECTION LINER



Determination of the Connection Liner

1. Angle of the laterals, in relation to each other (°)
2. Mainpipe diameter (mm)
3. Diameter of the bigger lateral (mm)
4. Diameter of the smaller lateral (mm)
5. Angle of the laterals in relation to mainpipe (°)



Amount of epoxy / Connection Liner

CONNECTION LINER

BODY	LATERAL	EPOXY, KG
50	50	0.362
70	50	0.445
70	70	0.508
100	50	0.570
100	70	0.633
100	100	0.726
150	50	0.777
150	70	0.840
150	100	0.933
150	150	1.088
200	50	0.984
200	70	1.047
200	100	1.140
200	150	1.296
200	200	1.451

DOUBLE CONNECTION LINER

BODY	LATERAL	LATERAL	EPOXY, KG
70	70	70	0.726
100	70	70	0.851
100	100	70	0.944
100	100	100	1.037
150	70	70	1.058
150	100	70	1.151
150	100	100	1.244

the choice of professionals.

Equipment needed for assembling the installation tool



Packer



***Clamping Tool,
Steel Strip &
Locks***



***Packer Sealant
Tape (Silicone
or "Nitto")***



***Compression
Sprayer***



Silicone Bladder



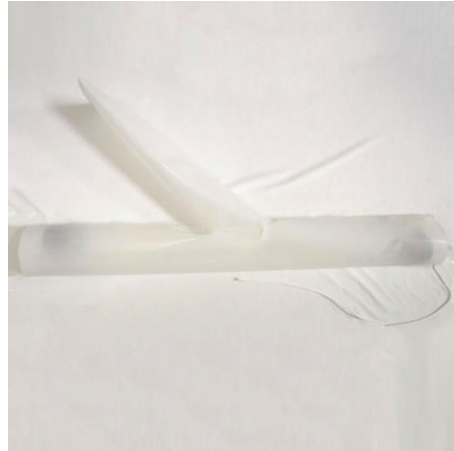
Relining Lubricant

the choice of professionals.

Packer installation inside Silicone bladder



1. Tape the Packer heads with Nitto or Silicone tape



2. Insert the Packer into the Silicone bladder



3. Make folds to the Silicone bladder and tape it to the Packer



Packer installation inside Silicone bladder



4. Tighten the steel strip to the bladder



5. Protect the steel strip by Nitto or Silicone tape

Pressure test and packaging the installation tool



6. Perform bladder pressure test at approx. 0.5 bar to make sure the tool does not leak



7. Lubricate the silicone bladder through air inlet



8. Pressurize the Silicone bladder, use a pressure regulator for assistance and pack the branch part inside the body



9. If the bladder has two branches, these must be packed into different ends of the body. The Connection Liner installation tool is ready for installation

the choice of professionals.

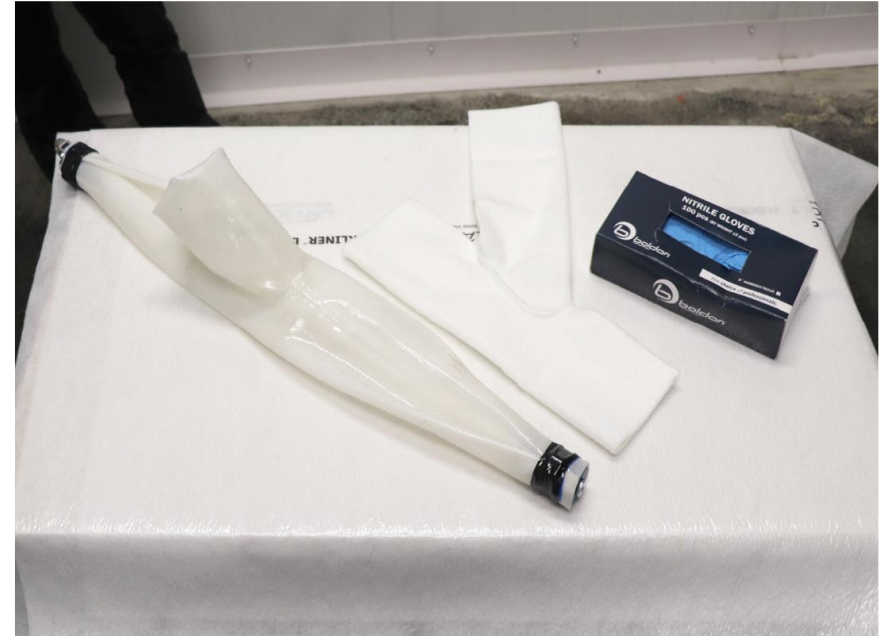
Connection Liner installation – ambient curing

Roughen the surface of the liner onto which the Connection Liner is installed with grinding sheets.

Preparation

Before commencing the Connection Liner impregnation, make sure the tools required for installation are close at hand.

Spread a layer of thick silicone oil on the silicone bladder.



the choice of professionals.

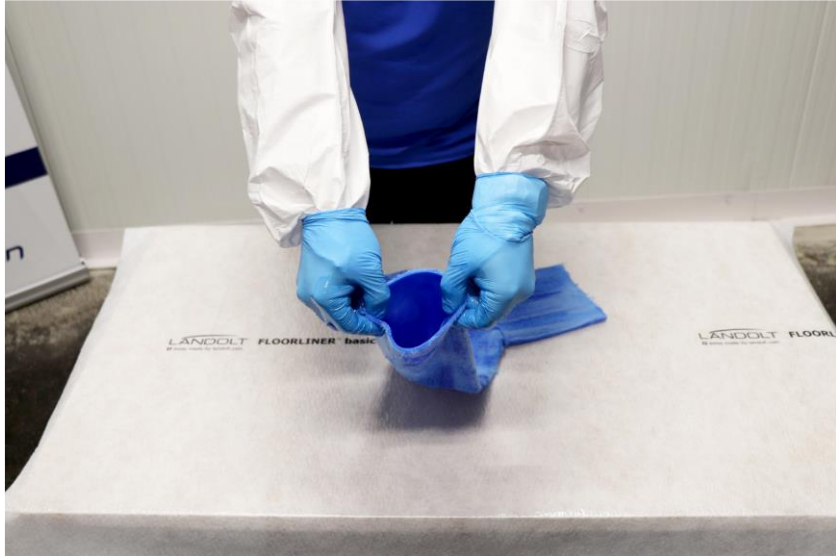
Connection Liner impregnation



Mix the required quantity of epoxy resin. Pour the mixed epoxy resin on the Connection Liner spread out on a table and commence impregnation.

the choice of professionals.

Connection Liner impregnation



When the Connection Liner has been impregnated from both sides, make sure the epoxy has absorbed into the Connection Liner all the way to the membrane. Remove excessive epoxy from the Connection Liner.

the choice of professionals.

Inserting the Connection Liner on top of the installation tool



Place the impregnated Connection Liner on the bladder, so that the seam of the bladder and the Connection Liner coincide.

the choice of professionals.

Inserting the Connection Liner on top of the installation tool



Apply pressure on the bladder, so that the branch part forces the Connection Liner branch fully open.



Pack the bladder and Connection Liner branch simultaneously inside the body while reducing the pressure.

the choice of professionals.

Inserting the Connection Liner on top of the installation tool



Set pressure to vacuum and press the entire tool flat against the table.



Fold the packed tool into as small and tight package as possible and tighten the package by using masking tape with glued surfaces opposite each other.

Inserting the Connection Liner on top of the installation tool



Cut the tape and make a cut about halfway to the tape.



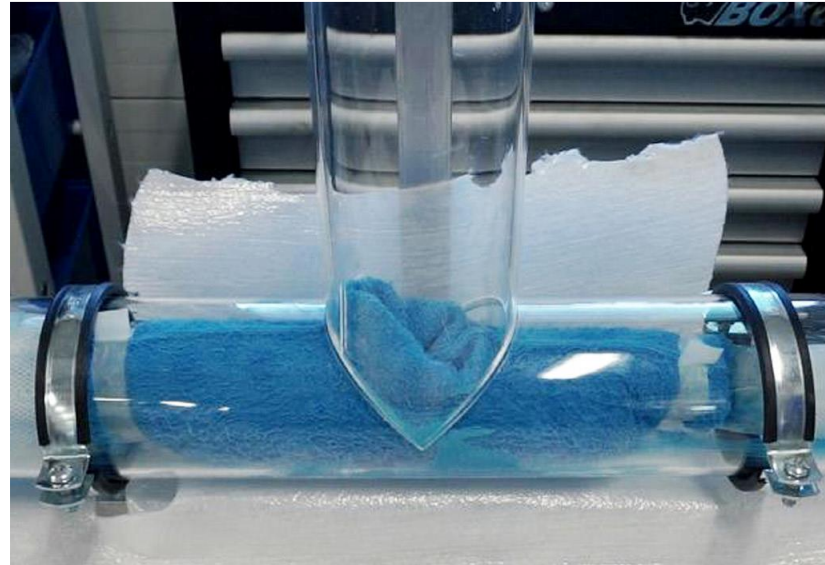
Connect the pressure hose and push rods to the Connection Liner tool.

the choice of professionals.

Connection Liner installation



Push the Connection liner through the main line to the lateral to be renovated; use a camera inserted through the lateral line for monitoring the process.



Place the Connection Liner branch into the middle of the branch and start pressurizing the tool carefully; when the branch starts to unfold, pull the camera back to prevent it from being caught under the Connection Liner.

the choice of professionals.

Connection Liner installation



Use installation pressure 0.6bar to ensure opening of the tapes. When the connection liner is fully open, maintain the pressure at 0.5-0.8 bar.



After the Connection Liner has cured, activate vacuum from Control Box to deflate the bladder, and remove the tool from the pipe.

the choice of professionals.