

# QUICK mini LOCK



## Quick-Lock Mini 100 - 150

User Manual

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## 1.1. System description

The Quick-Lock Mini has been designed to the repair of damages in the nominal width of DN 100 till DN 150. Length of the sleeves is 90 mm or 140 mm.

## 1.2. Suitability and materials used

The system is manufactured using V4A stainless steel grade 1.4404 (AISI 316L) and EPDM compression seal.

These materials are extremely durable in municipal waste water. The suitability of the materials for use in industrial or contaminated waste water is yet to be verified.

- Use the technical Data Sheet (see Appendix 1) to choose the right and most suitable Quick-Lock Mini for your particular application.
- For more information on the suitability of the products please see Chapter 1.6 of the Quick-Lock Manual.



### 2.1. Preparation

#### 2.1.1. Inspecting the pipe

Before using the Quick-Lock system, it is necessary to inspect the pipe/ducts due to be repaired and verify whether repair using Quick-Lock is possible.

There must be at least one access point available via a manhole or an inspection opening.

It is necessary to verify the possibility of transporting a packer with a sleeve into the pipe/duct.

#### 2.1.2. Cleaning and preparing the pipe based on the application

- The pipe to be repaired must always be cleaned with a high-pressure jet before installing Quick-Lock.
- Hardened sedimentation, roots and protruding connecting pieces must be removed with appropriate milling tools.
- The pipe should have no obstructions that may restrict movement.
- There must be no solids such as sand, gravel, hardened deposits or waste water solids around the damaged area.
- Part 5 of DWA-M 143 prohibits works from being done in waste water, which means the pipe section must be closed off. Depending on the amount of water, bypassing may be necessary.
- In the case of high-pressure cleaning, do not use other cleaning equipment since it may worsen the damage.
- The area to be repaired should be visually inspected and documented after cleaning.

## 2.2. Preparing the Mini sleeve

### Inspection

- Check the Quick-Lock Mini and the EPDM rubber for visible damage.

### Oil the sleeve

- Use a biodegradable oil.
- Push apart the metal overlap with a screwdriver.
- Oil the metal overlap to ensure that the sleeve will slide apart evenly.
- Oil the two locks.
- Wipe off excess oil from the inside and outside of the sleeve.

### Cutting the transport tapes (adhesive strips)

The adhesive tape prevents the sleeve from opening during transport.

- **Cut half-way through the adhesive tape in the area of the metal overlap.**
- **Warning:** If you cut right through the tapes, there is a risk that the sleeve might unroll when entering the pipe, thus restricting its movement.
- **Warning:** If you do not cut the tapes at all there is a risk that the sleeve might unroll too suddenly during installation when the tape tears, and break the return stop in the gears.



Cut the adhesive tape half-way through

**Applying talcum powder to the rubber EPDM**

- For easier handling, sprinkle talcum powder on the inside of the rubber.
- This makes it easier to slide the rubber over the sleeve. It also reduces the friction between the rubber and the steel sleeve during expansion.

**Centring the EPDM rubber****90 mm sleeve**

- When using a 90 mm sleeve, the rubber is usually trimmed.
- Use a sharp cutter knife or industrial scissors.
- Cut along the marking seam.



### Affixing the EPDM rubber

- To prevent displacement of the rubber EPDM on the QL Mini during transportation to the damaged area, affix the seal on both sides of the stainless steel sleeve and at the ends above the locks with a drop of super glue.
- **Warning: Under no circumstances** should the super glue drip onto the metal overlap, otherwise it will not longer be possible for the sleeve to expand.
- **Warning:** If the rubber is not properly affixed, there is a risk that it might bunch up at a constricted point in the pipe without you noticing.



position: 12 o'clock



position: 6 o'clock

### 3.1. Positioning the Quick-Lock sleeve on the packer

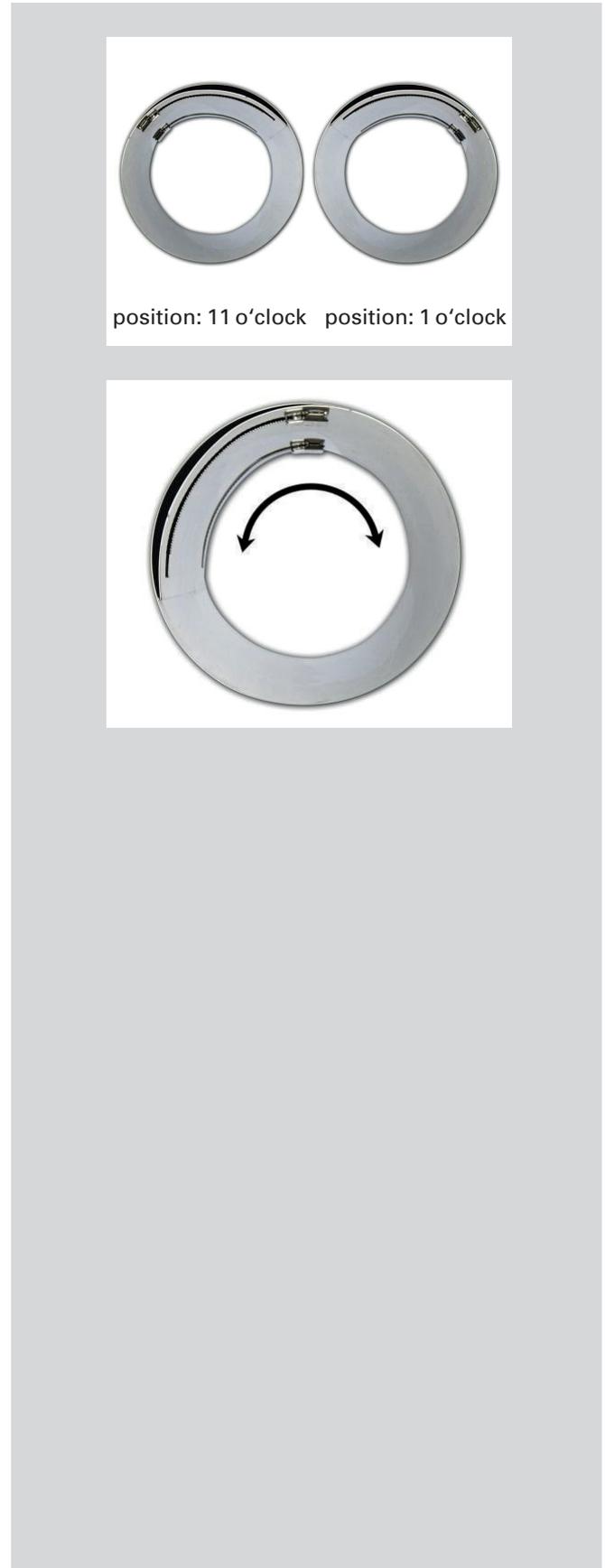
#### Set packer to nominal width

- Set the adjustable chassis of the packer to the nominal width of the host pipe. (See also instructions "Offset packer with adjustable chassis" 3.4, Appendix 4 of the Quick-Lock Manual).

#### Positioning the sleeve on the packer

- Position the Quick-Lock sleeve flush on the packer.
- Turn the Quick-Lock sleeve so that the middle of the toothed strip is in the 12 o'clock position.
- Depending on which way you are looking, the lock is in the 11 o'clock or the 1 o'clock position.
- **After installation**, the lock is always at the top, i.e in the **12 o'clock** position.

To install the Quick-Lock Mini bendable sleeves (90 mm), use our bendable Quick-Lock packer in conjunction with the appropriate push rods and sliding camera.



### 3.2. Installation

The Quick-Lock Mini system must always be installed along with a sliding camera. Always ensure that the push rods are used in conjunction with a hexagonal pneumatic fitting to position the lock (locking mechanism) in the vertex as far as possible (while remaining turnable).

- **Grip** the sleeve by inflating the packer balloon to a holding pressure of approximately **0.5** bar. The holding pressure is correct when the sleeve is firmly held on the packer but is not starting to expand.
- This prevents the sleeve from slipping off.
- The holding pressure of 0.5 bar may vary slightly depending on the compressed air unit, the pipe nominal diameter and the packer. We recommend that you identify the correct pressure for your system yourself.
- Now transport the packer with the Quick-Lock sleeve to the damaged area.
- Position the centre of the sleeve over the centre of the damage so that the damage is located between the seals.

#### Positioning pressure

- Press the packer with a positioning pressure of approximately 2.0-2.5 bar so that the sleeve expands and rests against the pipe wall.  
**Warning:** When expanding, make sure the sleeve opens evenly. The sleeve opens more easily if the metal overlap is lubricated.
- Apply pressure to the sleeve very slowly and intermittently and wait until it has reached full expansion. The smaller the sleeve is, the more important the time is.

#### Reducing the pressure

- Deflate the packer balloon.

#### Application pressure

- Now apply an application pressure of 6.0 - 6.5 bar to make sure that the Quick-Lock-Mini sleeve is completely compressed against the pipe wall. After this, release the pressure from the packer balloon, if necessary, position the packer in the middle of the respective locks and repeat the procedure.

**Warning:** In the case of downpipes, there is no counter pressure, so the applied pressure should be reduced.

#### Deflation

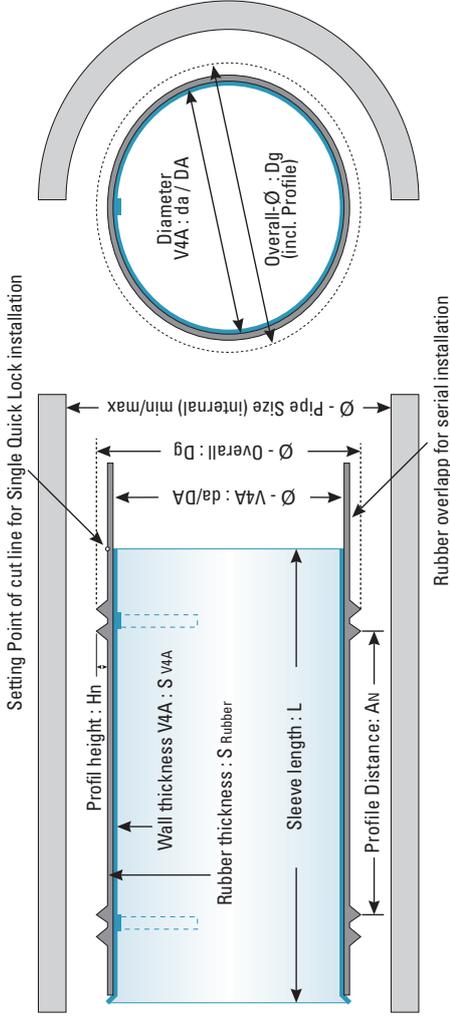
- Deflate the packer balloon completely and remove the packer.

#### Inspection

- Using the camera, check the Quick-Lock Mini has been installed correctly. Pan around the edges of the sleeve. The sleeve should now be fully pressed against the wall of the pipe.

### 3.3. Documentation

The repaired area must be documented when the inspection is successfully completed.



### QUICK-LOCK mini DN 100-DN 150

| Quick-LOCK Mini<br>mm<br>Designation | inch | EPDM Rubber<br>mm<br>Designation | Total diameter rolled<br>mm<br>Dg | Suitable for pipes from / to |                              | Packer         | Stainless steel sleeve        |                       |                              | EPDM Rubber                        |                             |
|--------------------------------------|------|----------------------------------|-----------------------------------|------------------------------|------------------------------|----------------|-------------------------------|-----------------------|------------------------------|------------------------------------|-----------------------------|
|                                      |      |                                  |                                   | Pipe ID min.<br>mm<br>DN min | Pipe ID max.<br>mm<br>DN max |                | Wall thickness<br>mm<br>S V4A | V4A pipe rolled<br>da | Max. expanded diameter<br>DA | Rubber thickness<br>mm<br>S Rubber | Height of seals<br>mm<br>Hn |
| 0100-090 <sup>1</sup>                | 4"   | 140 <sup>3</sup>                 | 90                                | 97                           | 107                          | VP 100-150 VFW | 0.6                           | 81                    | 102                          | 1.5                                | 3.0                         |
| 0100-140 <sup>2</sup>                | 4"   | 140                              | 90                                | 97                           | 107                          | VP 100-150 VFW | 0.6                           | 81                    | 102                          | 1.5                                | 3.0                         |
| 0125-090 <sup>1</sup>                | 5"   | 140 <sup>3</sup>                 | 109                               | 122                          | 132                          | VP 100-150 VFW | 0.6                           | 100                   | 127                          | 1.5                                | 3.0                         |
| 0125-140 <sup>2</sup>                | 5"   | 140                              | 109                               | 122                          | 132                          | VP 100-150 VFW | 0.6                           | 100                   | 127                          | 1.5                                | 3.0                         |
| 0150-090 <sup>1</sup>                | 6"   | 140 <sup>3</sup>                 | 128                               | 130                          | 154                          | VP 100-150 VFW | 0.8                           | 118                   | 145                          | 2.0                                | 3.0                         |
| 0150-140 <sup>2</sup>                | 6"   | 140 <sup>3</sup>                 | 128                               | 130                          | 154                          | VP 100-150 VFW | 0.8                           | 118                   | 145                          | 2.0                                | 3.0                         |

<sup>1</sup> Sleeve can be used in bended pipes (bends up to 45°)

<sup>2</sup> Sleeve can only be used in straight pipes

<sup>3</sup> EPDM rubber must be shortened