

# Installation instructions Fermenter

Installing the pipe work CNW 60/66, DN 50 with connector and seal

## 1 Installation of the NIROFLEX pipe work in a fermenter



## 2 Measuring and marking the position of the pipe supports

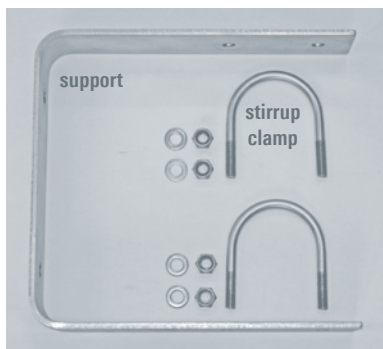
The height of the supports on the fermenter wall is determined by the position of the drill holes. The pipe work must lie axially to the core hole. Measure the height of all supports using a laser measuring device and drill the holes for them at intervals of c. 1.00 metre. Place the first and the last support at a distance of 1.3 m from the centre of the core hole.



## 3 Installing the supports

Install all the supports for the pipe work. All the stirrup clamps and the screws are made of stainless steel.

**Attention!** The screws delivered with the pipe work may only be used in tanks with a wall thickness of at least 120 mm!



support for two pipes

## 4 Rolling off the NIROFLEX pipe

The endless, spirally corrugated NIROFLEX pipe is rolled off the drum metre for metre, aligned and provisionally fixed in place.

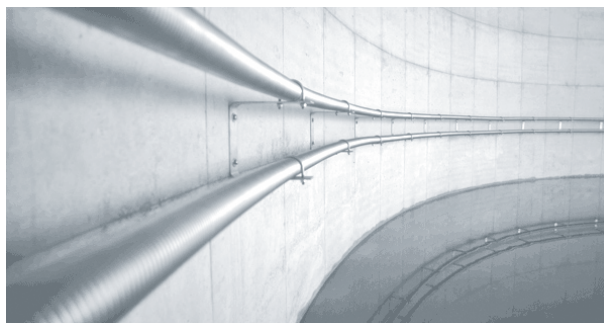


## 5 Fixing the pipe

Fix the NIROFLEX pipe to the supports using the stirrup clamps, but without using any force and causing undue tension.



## 6 The completely installed pipes.

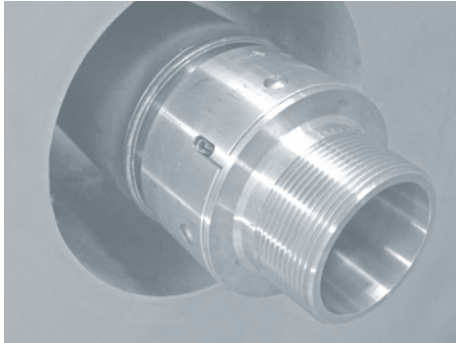


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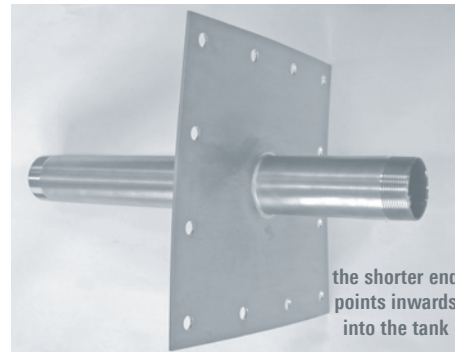
**7 The corrugated pipe is led out of the tank with the bending support (As described on Datasheet BGT 1.800)**

The NIROFLEX connector lies outside the tank. The welded-on wall duct lies inside the tank wall. For installation instructions for the leading out of the NIROFLEX pipe with its connector and gasket insert, see Figs. 10 to 47.



**9 Fitting the double nipple (pipe fitting) with flange plate**

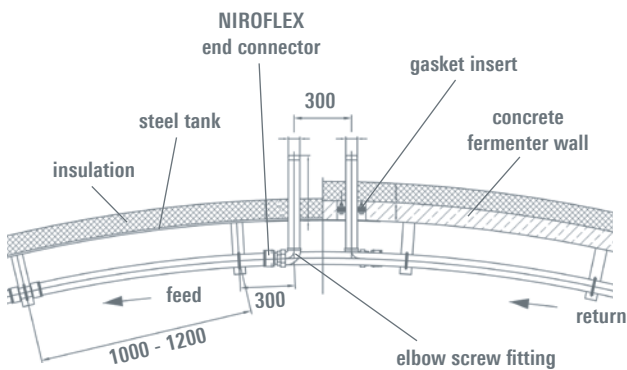
Version for steel tanks or concrete tanks (also prefabricated)



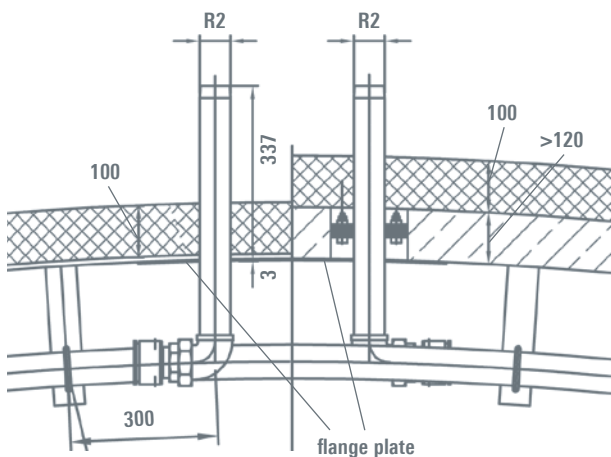
Push the double nipple into the opening of the steel tank or the core hole of the tank. In the case of a concrete tank also push in the gasket insert from outside and fit it in the correct position (pointing to the external wall of the tank).

**8 NIROFLEX connector inside of the tank with a rigid pipe wall duct with flange plate for screwing it onto the tank wall (As described on Datasheet BGT 1.810)**

Version for steel tanks or concrete tanks (also prefabricated).



All dimensions in mm



All dimensions in mm

Screw on the flange plate.

**Attention!** The screws delivered with the pipe work may only be used in tanks with a wall thickness of at least 120 mm! Permanently elastic insulation material (e.g. Sikaflex) must be fitted between the tank wall and the flange plate.

After this, screw the elbow screw fitting with the rigid component to the double nipple. Position the last support. The pipe should lie horizontally to the elbow screw fitting.

Mount the end connector, aligning it correspondingly. For installation instructions for the NIROFLEX pipe end connector see ISI 8.86.01 to ISI 8.86.04.

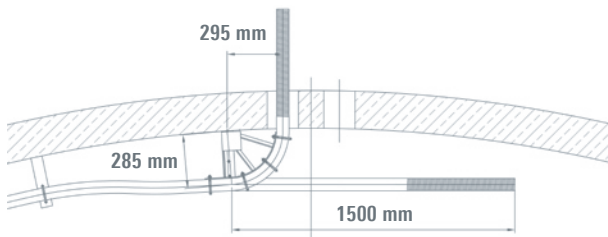
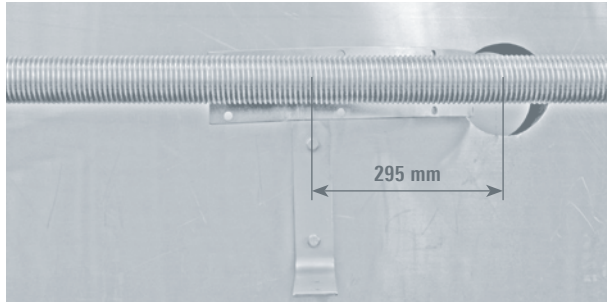
Finally, connect the pipe work with the elbow screw fitting. For the final installation of the gasket insert, see Figs. 46 and 47.

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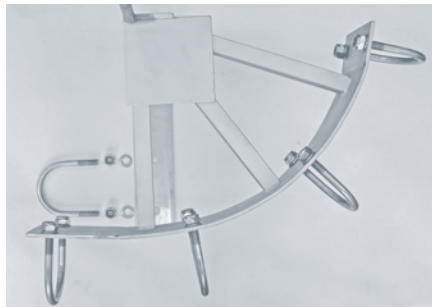
Leading out the pipe work CNW 60/66, DN 50 with connector and seal

## 10 Position of the bending support relative to the core hole

Important! The exact measurements must be observed to ensure that the wall duct is centrally aligned.

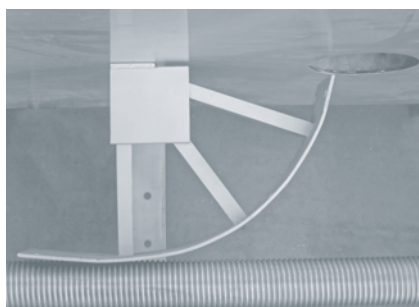
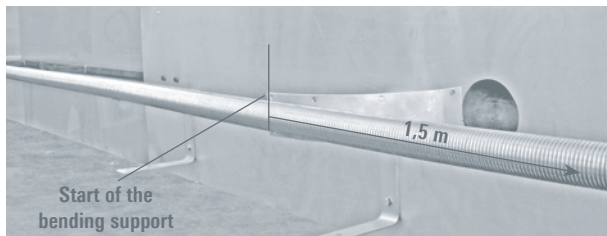


## 11 The bending support



## 12 Preparatory work

The corrugated pipe must not be fixed to the bending support and two further supports (i.e., for a length of c. 3.0 m to 3.6 m). The pipe end must project c. 1.5 m beyond the fixed point of the bending support.



## 13 Bending the pipe out of the tank

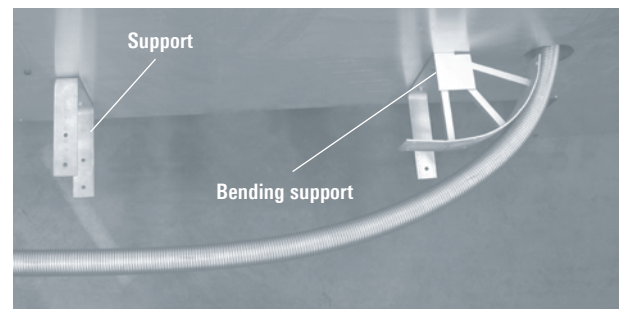
At least 4.5 m of loose pipe end is needed to introduce the pipe into the core hole.

Attention! Make sure there is no kinking of the pipe!



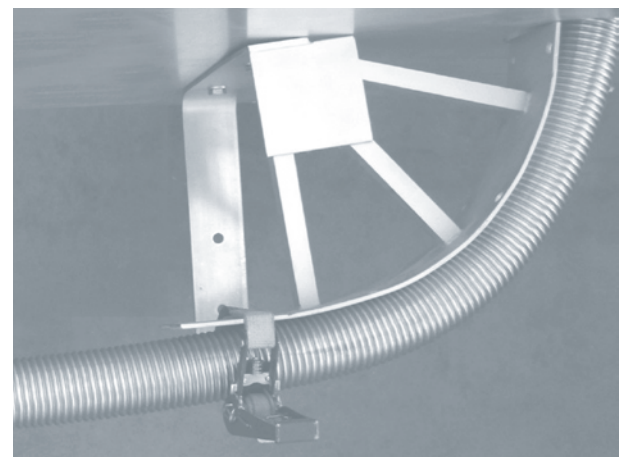
## 14 Pushing in the pipe

Push the pipe through the core hole as far as it will go.



## 15 Securing the pipe to the bending support

Pull the pipe towards the bending support in the position shown, using a lashing strap.

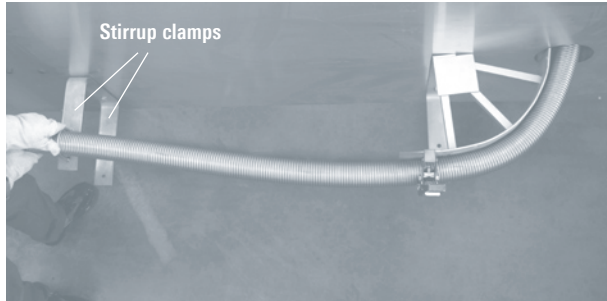


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Leading out the pipe work CNW 60/66, DN 50 with connector and seal

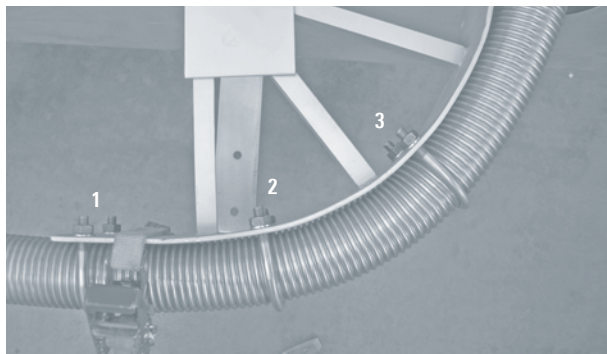
## 16 Fixing the pipe to the supports

The corrugated pipe must now be fixed to the further supports by means of stirrup clamps.



## 17 Fixing it to the bending support

Three of the stirrup clamps must be fixed to the bending support in the order shown here! The corrugated pipe lies along the plate in this section.



## 18 Preparing for stirrup clamp no. 4

Position the lashing strap again as shown. Shove the scantling into the core hole at the sides and press the corrugated pipe onto the stirrup clamp support. Then tighten the lashing strap.



## 19 Fitting stirrup clamp no. 4

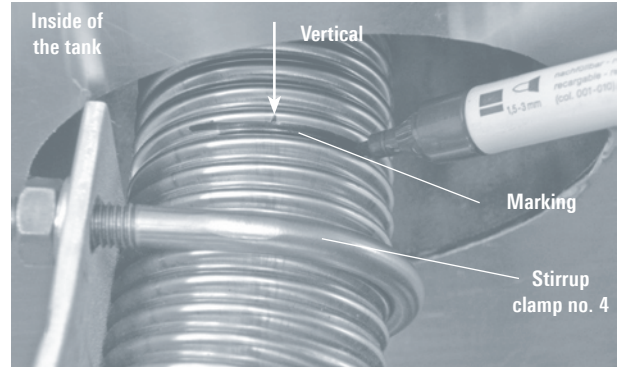
Now fit the last stirrup clamp!

The pipe must be aligned centrally in the core hole.



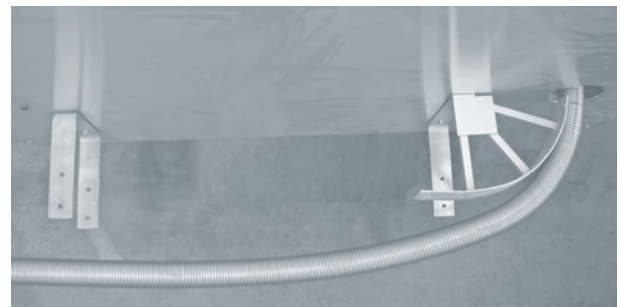
## 20 Making the marking for the pipe connector

Mark the position on the pipe before drawing it through into the tank.



## 21 Loosening the stirrup clamps

Release all the stirrup clamps on support and the two further supports.



**Defective!**  
Never bend the pipe without a bending support!

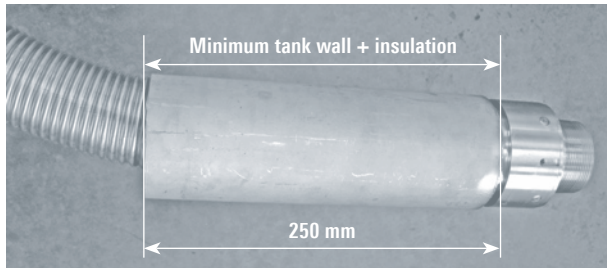


# Installation instructions Fermenter

End connector with graphite sealing ring for corrugated pipe DN 50

## 22 Fitting the connector with wall duct and gasket insert

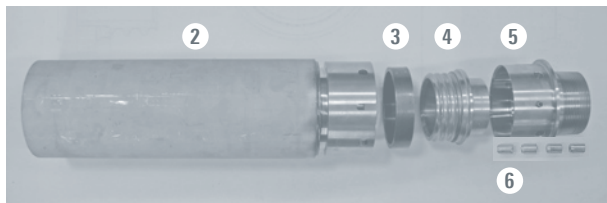
Attention! The wall duct is 250 mm long. If the wall of the tank is thinner than 250 mm, shorten the wall duct to at least the thickness of the tank wall.



## 23 Packaged unit with connector



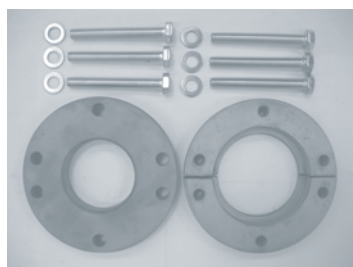
GRAPA connector with external thread



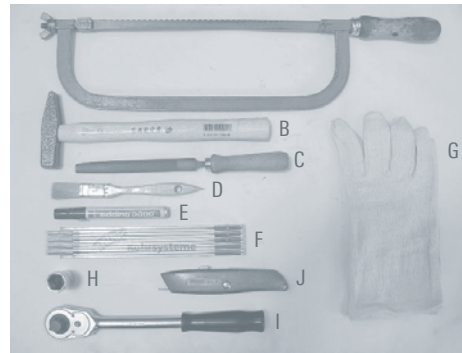
- 1 Corrugated pipe (not shown)
- 2 Pressure ring with wall duct
- 3 Graphite sealing ring
- 4 Support collar
- 5 Connector with external thread
- 6 Groove pins
- 7 Gasket insert: Two sealing elements for sealing the core hole



## 24 Installation flanges for the connection



## 25 Tools for installation



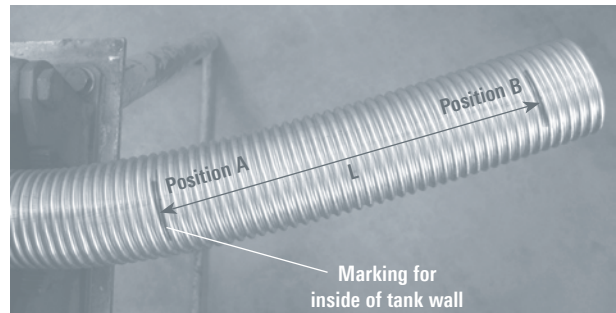
- A saw
- B hammer
- C half-round file
- D brush
- E marker
- F ruler
- G gloves
- H nut SW 17 hexagonal
- I ratchet
- J Stanley knife



- K lashing strap 35 x 500 mm
- L scantling  $\square$  c. 30-40 mm, c. 1 m long

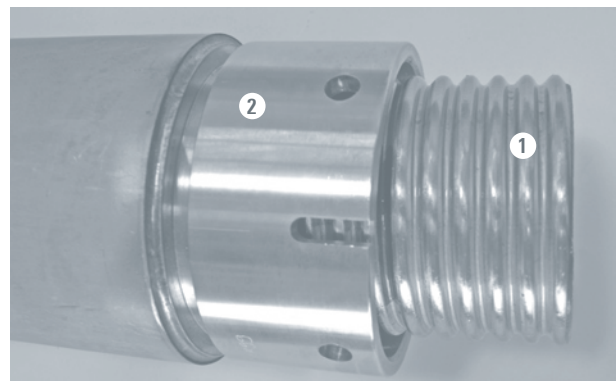


## 26 Saw off the pipe to a length longer than L



$L = \text{tank wall thickness} + \text{insulation} + 30 \text{ mm}$

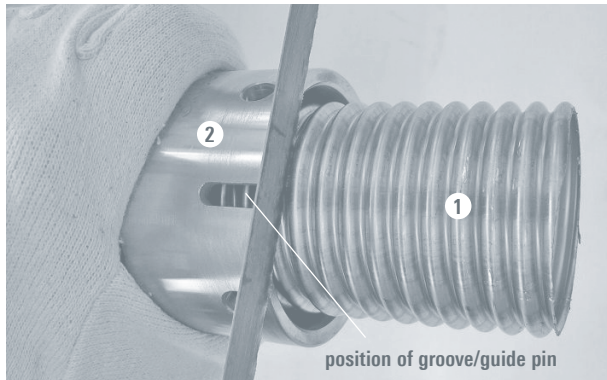
Pressure ring screwed on with wall duct up to position B



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End connector with graphite sealing ring for corrugated pipe DN 50

## 27 Position of the groove when sawing



### Sawing off the corrugated pipe (1)

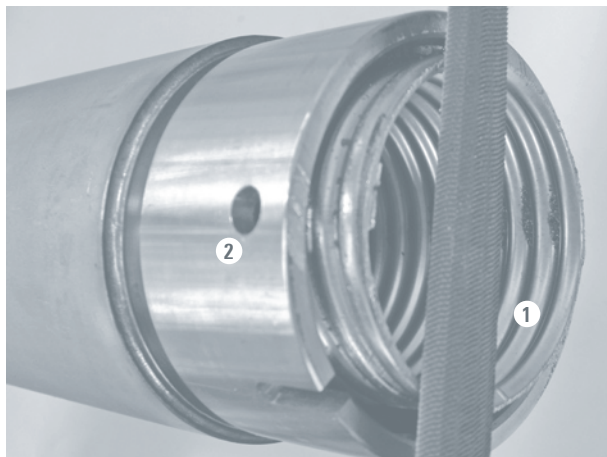
Use the pressure ring (2) as a saw jig  
Around the groove, always saw in the trough of the pipe corrugations. Start sawing there.

Hold the pressure ring (2) in place with your hand.

**Attention!** The trough of the pipe corrugations **must be sawn off at right angles to the pipe axis** along the pressure ring. If necessary, file as needed till the fit is right.

## 28 Removing burrs from the corrugated pipe (1)

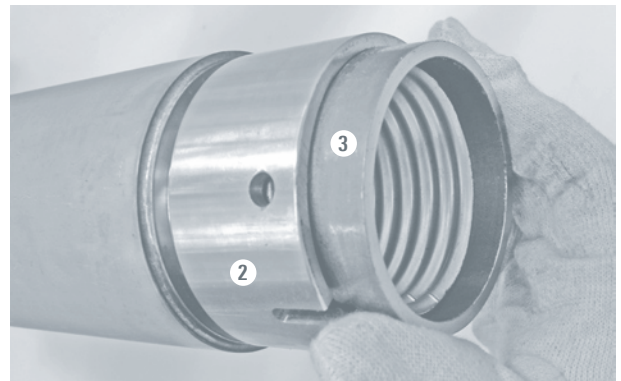
Screw the pressure ring (2) further up the pipe. Remove burrs from the pipe end until it is perfectly smooth.



## 29 Remove all filings

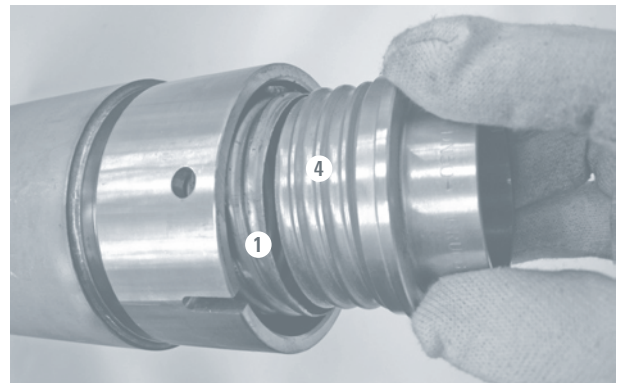


## 30 Put the sealing ring (3) in place



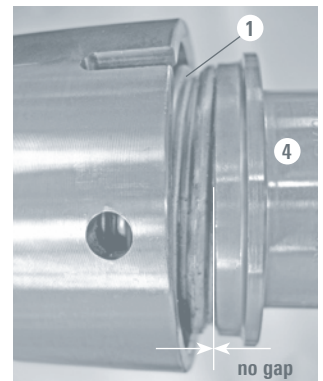
## 31 Screwing in the supporting ring (4)

Screw the supporting ring (4) into the corrugated pipe (1) until it will go no further.



## 32 Screwed in supporting ring (4)

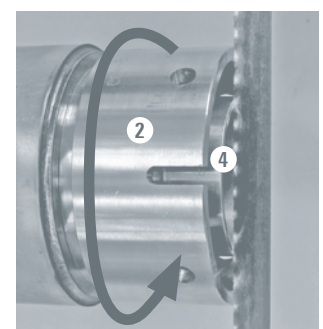
The supporting ring (4) must lie against the corrugated pipe all the way round.



## 33 Positioning the pressure ring (2)

Turn back the pressure ring (2) far enough so that it lies parallel to the front edge of the supporting ring (4).

**Work with the utmost precision – use auxiliary equipment!**

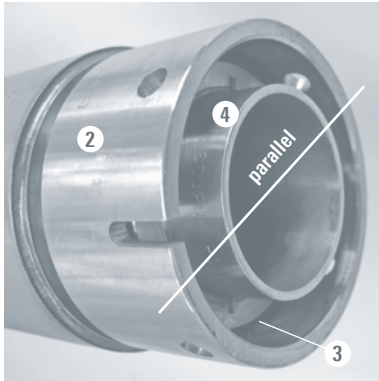


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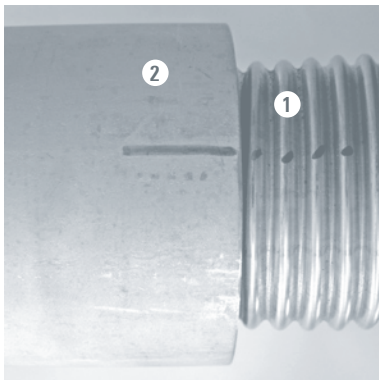
End connector with graphite sealing ring for corrugated pipe DN 50

## 34 Front view

The sealing chamber, comprising the pressure ring (2), the supporting ring (4) and the sealing ring (3) is now precisely aligned



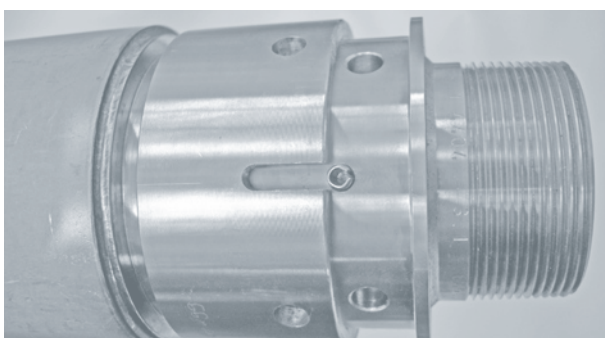
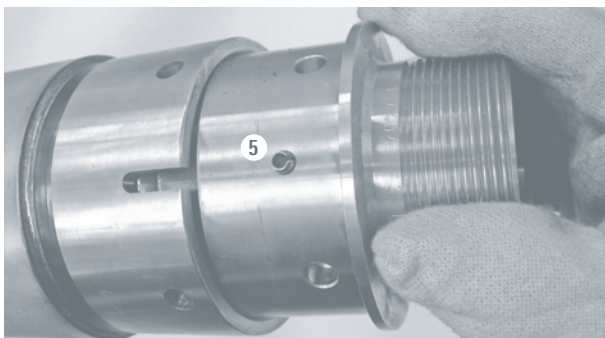
## 35 Mark the position of the pressure ring with wall duct (2) with the corrugated pipe (1)



At all stages of the further installation, make sure that the pressure ring (2) does not tilt relative to the pipe.

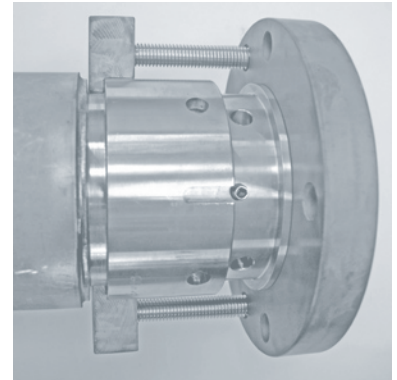
## 36 Push in the connector with external thread (5)

Position the guide pin of the connector (5) correctly to the groove.



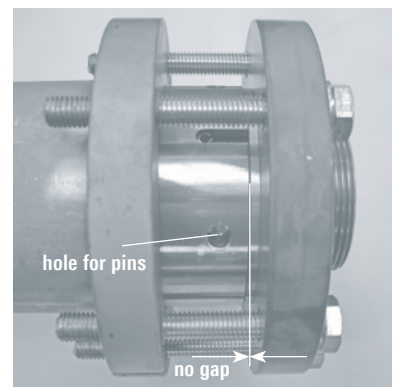
## 37 Fitting the installation flanges

Attention: Insert the split rear flange in the groove (see illustration) **Important! Grease the screws!**



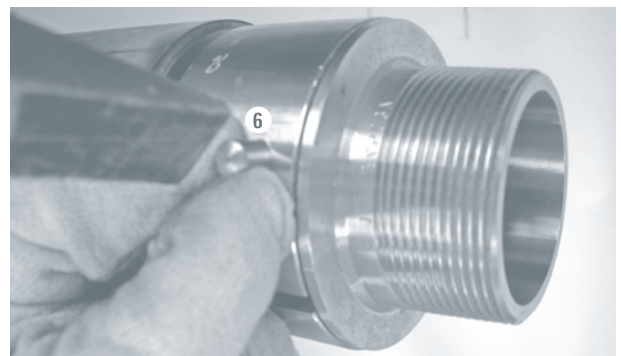
## 38 Draw together the fitting with the flanges

Tighten the screws one after another clockwise until the parts lie together as a block. Make sure not to give the components too much tension. (No tilting) **Remove the flanges**

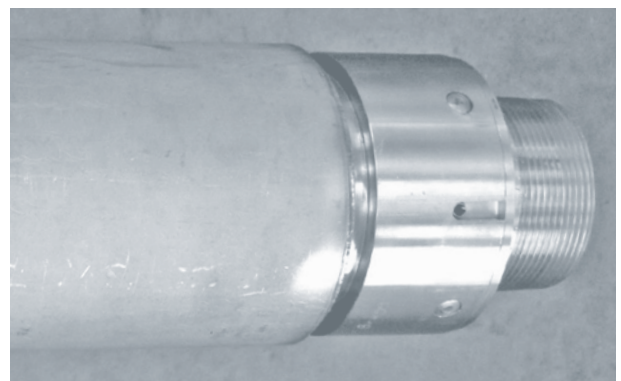


## 39 Securing the connector

Hammer all the groove pins (6) into place around the entire circumference.



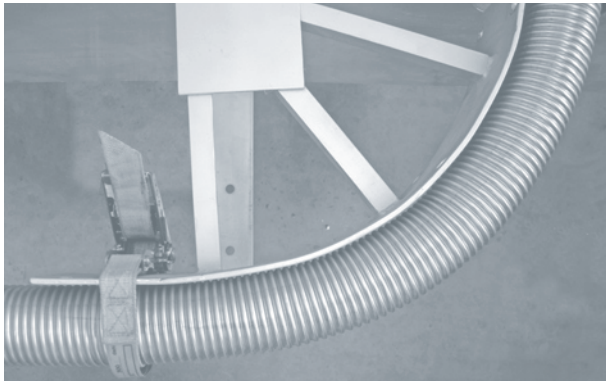
## 40 Completely installed connector



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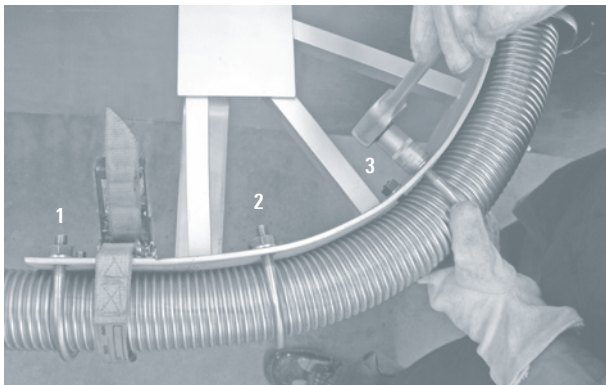
End connector with graphite sealing ring for corrugated pipe DN 50

41 Fit the lashing strap again at the position shown!

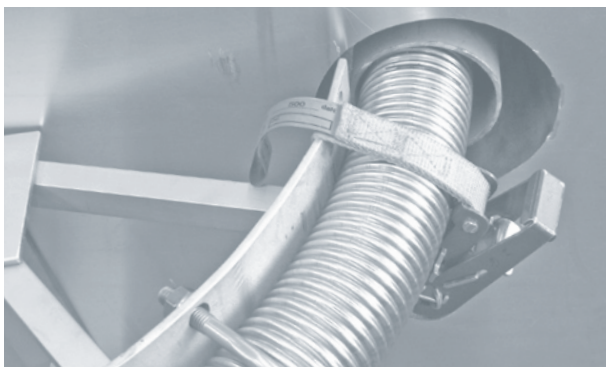


42 Fit the stirrup clamps

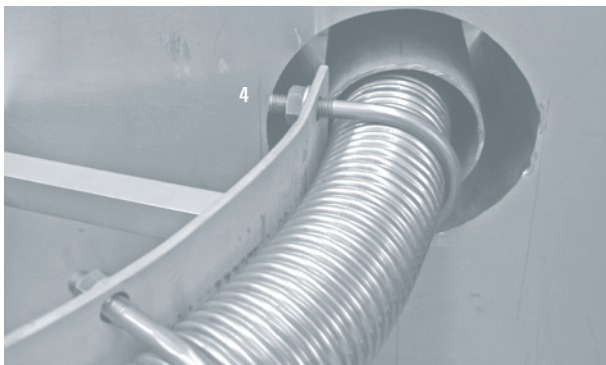
First secure the pipe to the supports by means of the stirrup clamps. Then fit stirrup clamps 1 to 3 on the bending support.



43 Fit the lashing strap



44 Then fit the last stirrup clamp (no. 4)

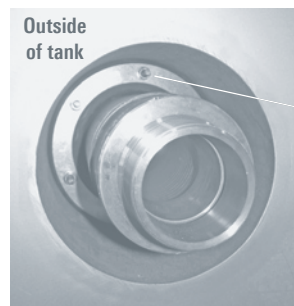
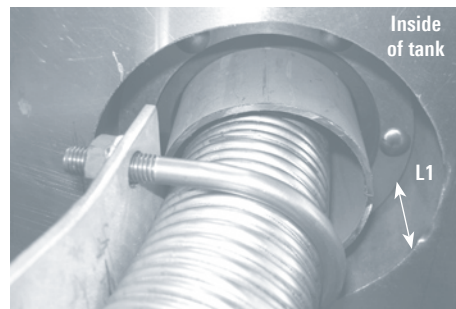


45 The pipe end with the fitting now protrudes from the tank



46 Rear seal of the core hole

Push the first sealing element from outside the tank into the core hole and slide over the connector fitting onto the wall duct (inside the tank) for a length of c. 40 mm (L1).



Tighten the washers clockwise using the ratchet and a torque wrench. Tighten the washers several times. Repeat this after two hours. Max. torque M8 = 10 Nm

47 Front seal for the core hole

Place the second sealing element at the front of the core hole and repeat the procedure detailed above.

