


# Manual

## Installation Manual for Benarx Cellular Glass XP with Spacers


### Installation Manual for Benarx Cellular Glass XP with Spacers

Dokument nr. / Document no.:	Gjelder for følgende selskaper/prosjekter innen konsernet / Applies to the following companies/projects within the group:	
<b>TECH-MA21-00562</b>	<b>Beerenberg Services AS</b>	
Vedlegg til:	Navn på overordnet dokument/prosess:	
NA		
Revisjon / Revision:	Publish date:	Sider / Pages:
1.0	<b>07.10.2019</b>	<b>23</b>
Utarbeidet av / Prepared by:	Gjennomgått av prosesseier / Reviewed by process owner:	Godkjent for HMS/K-systemet av / Approved for the HSE/QA system by:
<b>R&amp;D Manager</b>	<b>Engineering Manager</b>	<b>Dokument kontroll / Document Control</b>

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## 1. Introduction

### 1.1 Field of application

This document shall be used to secure correct installation of Benarx Cellular Glass XP with Spacers. The product inner side has attached rubber spacers (distance rings) which make an air gap between pipe and insulation.

This document serves as a reference document as it takes precedence over all corresponding project related documents describing installation of Benarx Cellular Glass XP with Spacers.

### 1.2 Installation manual changes

Only Technology & Development Department by Beerenberg is entitled to make changes to this document.

### 1.3 Responsible

Individual operator who install the Benarx Cellular Glass XP distanced insulation system is responsible for following the installation procedure described in this document. The project manager is responsible for ensuring that the latest available revision of this document is made available and known to the workers involved.


### 1.4 Definitions and abbreviations

Cellular Glass XP	-	Benarx Cellular Glass XP
Drain plug	-	Benarx Fire Plug
Flexiroll XP	-	Benarx Flexiroll XP
PFP	-	Passive Fire Protection
XP tightening band	-	Tightening band with glass fibre tape (on band's innermost side) and clips – for Benarx Cellular Glass XP
XP	-	Pitt-Char XP

All metal materials used for fastening and installation of Benarx Cellular Glass XP with Spacers shall be of acid-proof stainless steel, type AISI 316L only.

### 1.5 Informative references

Benarx Solutions document TECH-P21-0058, "Inspection Procedure for Benarx Cellular Glass XP"  
 Benarx Solutions document TECH-P21-00573, "Stainless steel tightening band attached glass fibre tape and Benarx Drain Plug"  
 Benarx Solutions document TECH-MA21-00561, "Installation Manual for Benarx Cellular Glass XP"  
 NORSOK standard R-004, "Piping and equipment insulation"

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## 2. Tools, Materials and Protective Equipment


Tools, components and accessories that is recommended for product installation.

### 2.1 Tool list

Item no.	Tools
1	Marker pen (type Pilot)
2	Numeric metre (length 3 meter)
3	Inch rule
4	Sheet metal shear, left hand
5	Sheet metal shear, right hand
6	Hand drill
7	Tightening tool
8	Locking plier, 3/4"
9	Grip pliers
10	Cellular glass scrape (knife type "Mora")
11	Caulking gun
12	Compass saw
13	Pop tong (TT55)
14	Hole saw (22 mm)
15	Hammer (rubber type)
16	Stanley knife
17	Protractor
18	Compass
19	Handsaw
20	Coarse file

### 2.2 Accessory list

Item no.	Accessories
1	Nitoseal SC N (white colour)
2	Nitoseal SC 30 (red colour)
3	RUKO Strip (fire gasket)
4	Glass fibre tape (19 mm)
5	Stainless steel tightening bands, (quality A4), 3/4"
6	Stainless steel clips (quality A4), 3/4"
7	Stainless pop rivets (type AISI 316L), 3,2 x 6 mm
8	Drill bits Ø 3,3 mm (type Dormer)

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### 2.3 Protective equipment list

Item no.	Protective equipment
1	Dust mask (P2 filter)
2	Gloves (cut secure / Kevlar fibre)
3	Safety overall
4	Safety eye wear
5	Safety shoes
6	Helmet


Notes:

1. Protective equipment shall be used in accordance with applicable health, safety and environmental requirements specified for the work place.

### 3. Clarification before procurement and start-up

A Beerenberg Services representative (technical responsible) shall clarify any start-ups in the event of pipe temperatures over 80°C.

Make sure that all insulation parts are intact in addition to be free from water, dew, ice and contaminants.

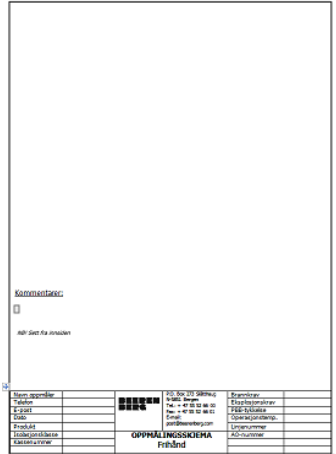


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#### 4. Component List

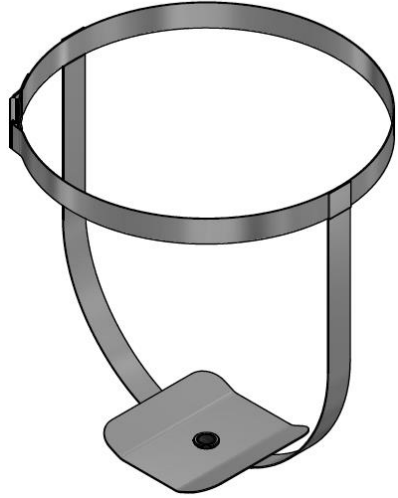
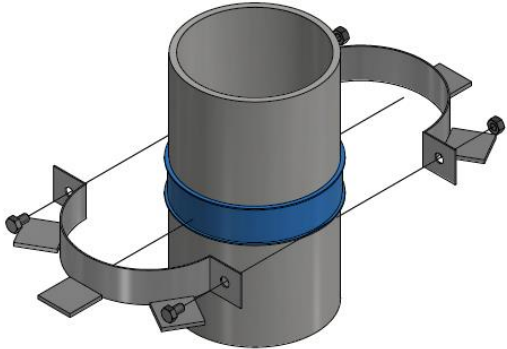
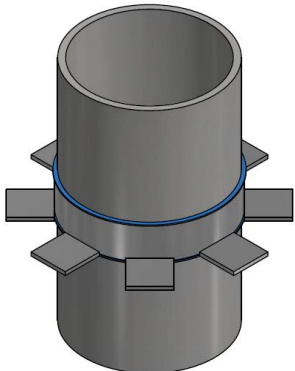


Figure 1. Illustration of Benarx Cellular Glass XP with Spacers.


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Component number	Description	Order	Illustration
1.	<p><i>Benarx Cellular Glass XP with spacers</i></p> <p>XP MEASUREMENT SKETCH</p>	<ul style="list-style-type: none"> <li>Attach own measurement sketch if the standard cannot be utilized.</li> <li>Attach the sketch to the order.</li> </ul>	
2.	<p><i>XP Tightening band</i></p> <p>Supplied with 200 mm overlap.</p> <p>Ready for installation.</p>	<ul style="list-style-type: none"> <li>Outer diameter where the band shall be installed.</li> <li>Quantity of pieces.</li> </ul>	
3.	<p><i>Benarx Drain Plug</i></p>	<ul style="list-style-type: none"> <li>Outer diameter where the band shall be installed.</li> <li>Quantity of pieces.</li> </ul>	

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Component number	Description	Order	Illustration
4.	<i>Benarx Drain Plug for T-Piece</i>	<ul style="list-style-type: none"> <li>Produced on site.</li> <li>Pop nails shall be riveted flat.</li> </ul>	
5a.	<i>Retaining ring for vertical pipe – fastened with bolts and nuts</i>  <i>Alternative 1</i>	<ul style="list-style-type: none"> <li>Outer diameter on pipe.</li> <li>Quantity of pieces.</li> </ul>	
5b.	<i>Retaining ring for vertical pipe – fastened with tightening band</i>  <i>Alternative 2</i>	<ul style="list-style-type: none"> <li>Outer diameter on pipe.</li> <li>Quantity of pieces.</li> </ul>	




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## 5. Implementation

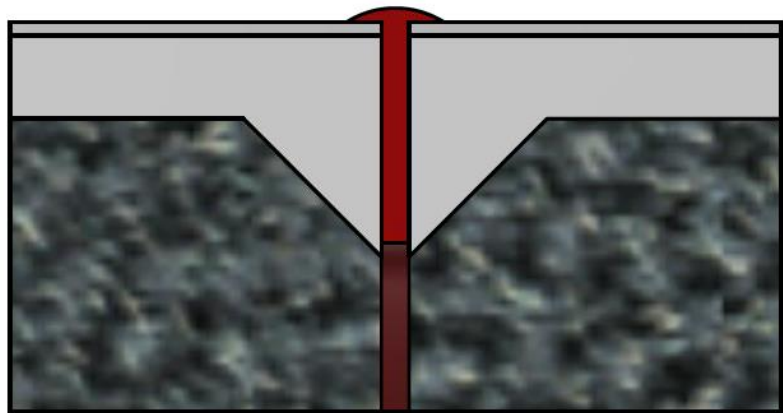
Execution shall be implemented according to illustrations.

<p>1a.</p> <p>Sealing compound - Inside</p> <p>Nitoseal SC 30 shall be used as sealing compounds on the inside due to possible high temperature exposure.</p> <p>Area of use:</p> <ol style="list-style-type: none"> <li>1) between insulation pipe sections</li> <li>2) to glue rubber spacers to inner side of insulation pipe shells.</li> </ol> <p>Nitoseal SC 30 has red colour.</p>	
<p>1b.</p> <p>Sealing compound - Outside</p> <p>Nitoseal SC N shall be used as sealing compound on joints on outer side of insulation pipe sections.</p> <p>White colour shall be utilized unless otherwise is specified.</p>	

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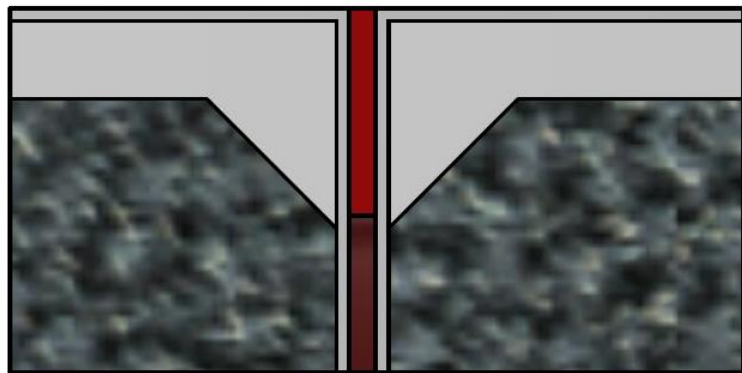
2a.

Application of sealant – without edge painting.



2b.

Application of sealant – with edge painting.



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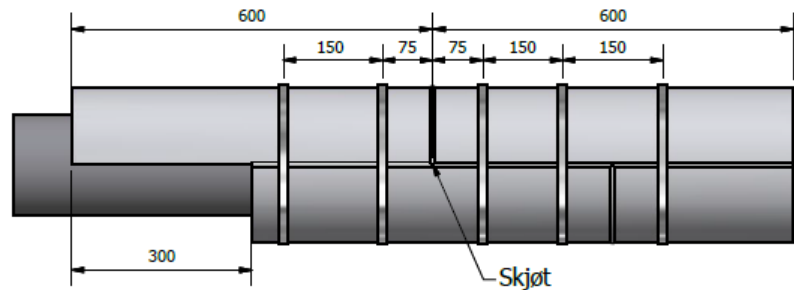
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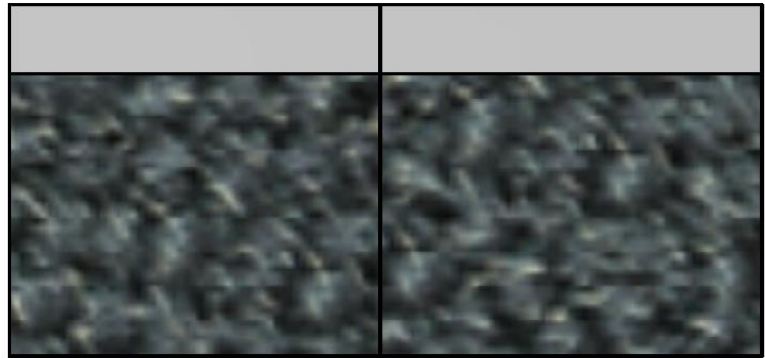
3.

Permanent tightening bands.

Measure and mark the correct  
placement of the tightening bands.The preferred method is to install the  
XP tightening bands 75mm beside the  
circumferential joints.The centre-to-centre distance of the  
XP tightening bands is always  
minimum 150mm.**IMPORTANT**Do not overtighten XP tightening  
bands. Overtightening will cause top  
coat damages.

4a.

Incorrect installation – cut edges



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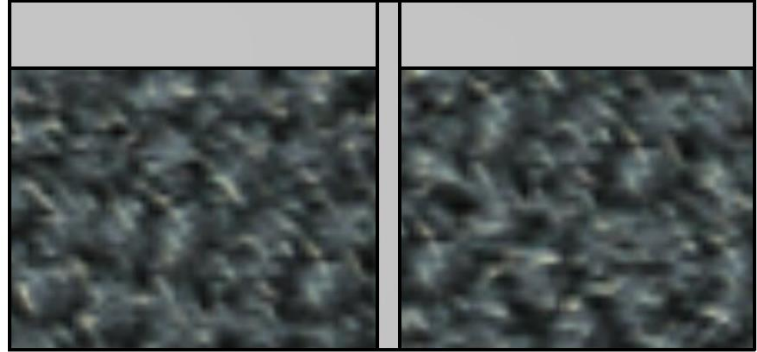
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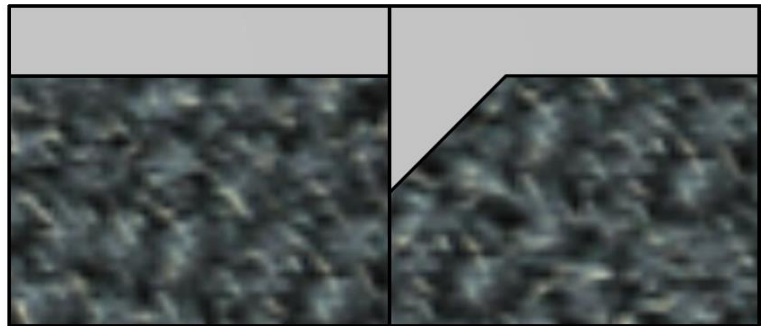
4b.

Correct installation (1 of 3):  
- Cut edges with Pitt-Char XP.



4c.

Correct installation (2 of 3):  
- Cut edge + single chamfer edge with  
Pitt-Char XP.



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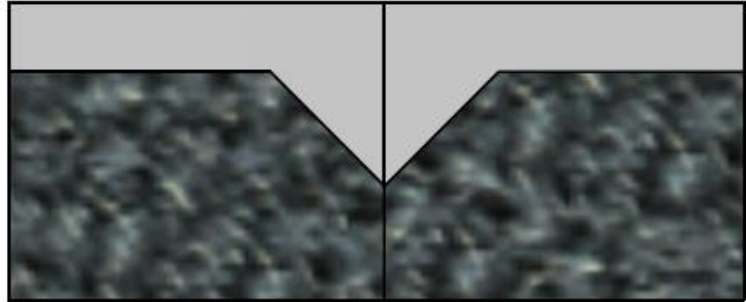
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4d.

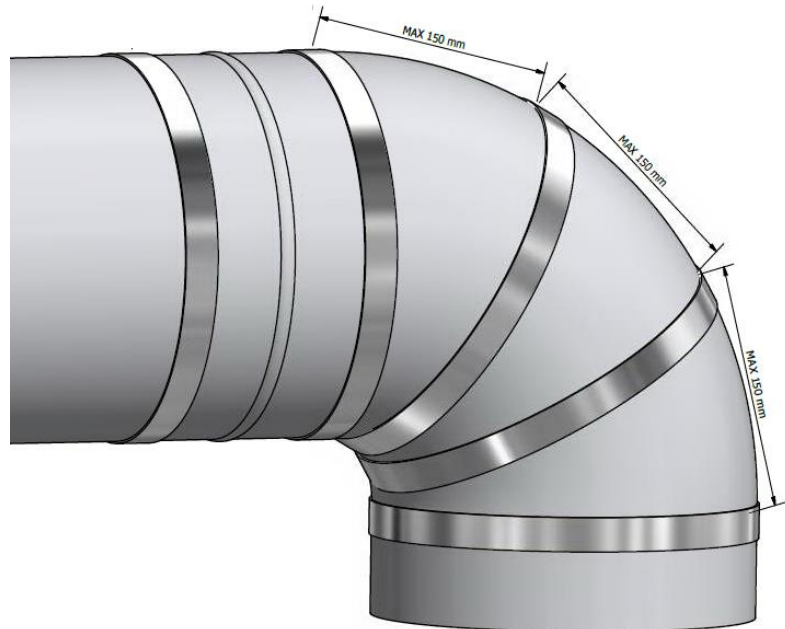
Correct installation (3 of 3):  
- Double chamfer edge with Pitt-Char  
XP.



5.

Centre distance XP tightening bands.

XP tightening bands of type  $\frac{3}{4}$ " is  
installed with 150 mm distance  
(centre to centre).



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6a.

Installation of T-piece with dissimilar pipe diameter.

Cut and adjust the vertical component to the horizontal pipe as illustrated.

During incidents where the dimension difference is small (1-2") the smallest dimension can be installed on the outside of the larger dimension.



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6b.

Cutting of horizontal components for installation on the outside of vertical components.

Cut and adjust the first horizontal component to the vertical component.

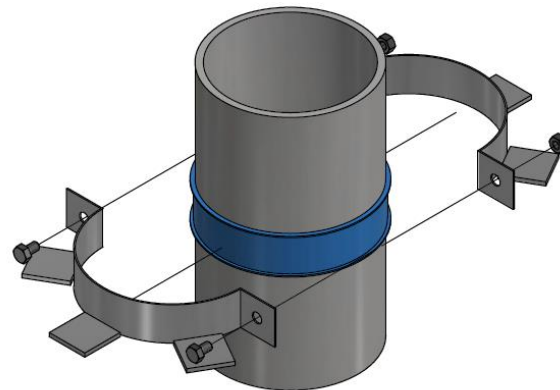



7a.

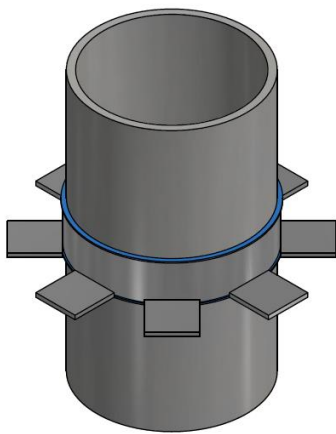
Installation of retaining ring on vertical pipe sections.

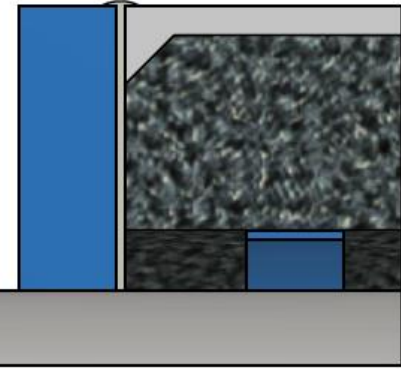

Alternative 1:  
Fastening with bolts and nuts.

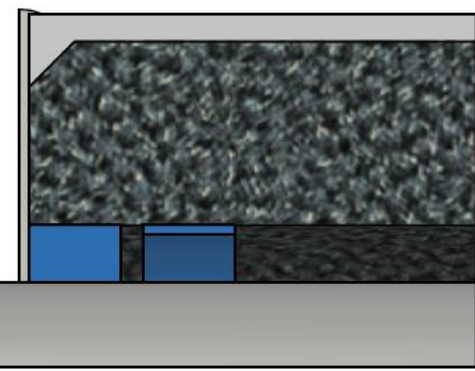

Note:  
Gasket shall be installed on pipe in advance.



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<p>7b.</p> <p>Installation of retaining ring on vertical pipe sections.</p> <p>Alternative 2: Fastening with tightening bands.</p> <p>Note: Gasket shall be installed on pipe in advance.</p>	
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<p>8a.</p> <p>Correct installation (alternative 1 of 4): - Preformed end cap on outside.</p>	 
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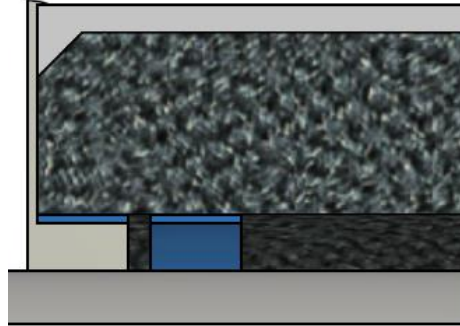
<p>8b.</p> <p>Correct installation (alternative 2 of 4): - Preformed end cap on inside.</p>	 
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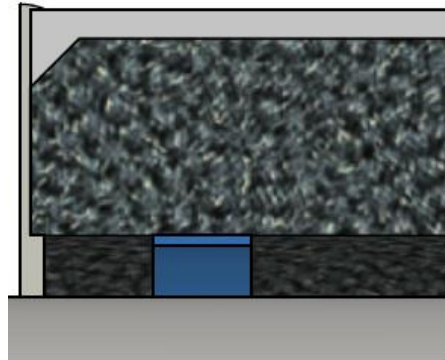
8c.

Correct installation (alternative 3 of 4):  
- Distance ring end cap filled with sealant.



8d.

Correct installation (alternative 4 of 4):  
- Sealant end cap.



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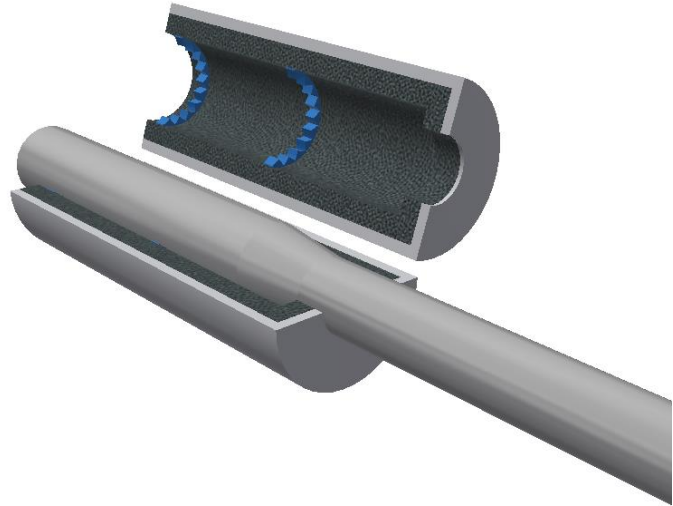
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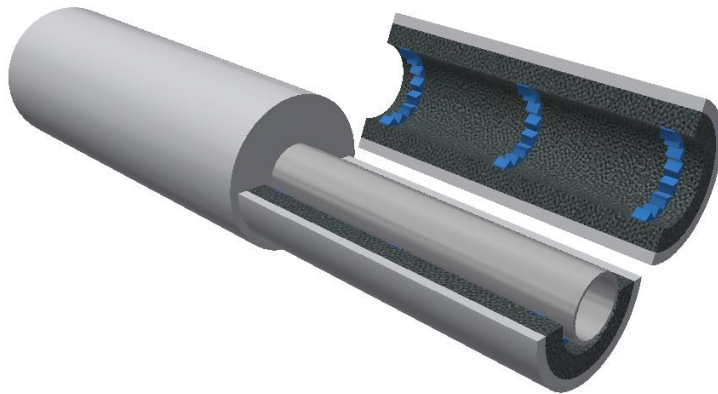
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9a.

Alternative solutions for reduction.

XP sealed, end cover adjusted on  
site.Firstly, install the XP sealed end  
cover over the reduction (largest  
dimension).

9b.

Install XP tangent section against  
sealed end cover.

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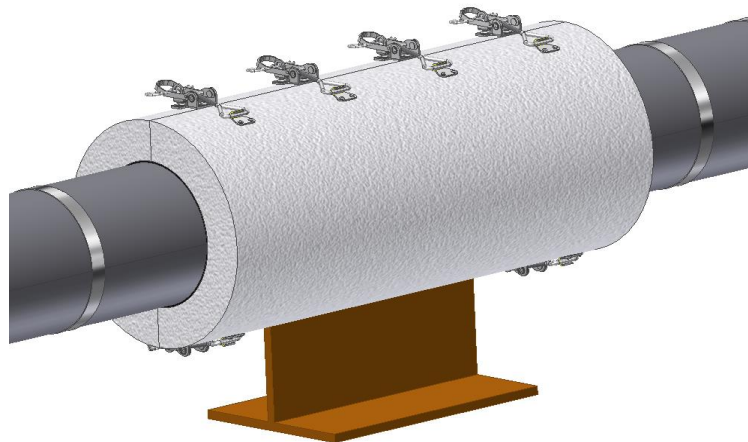
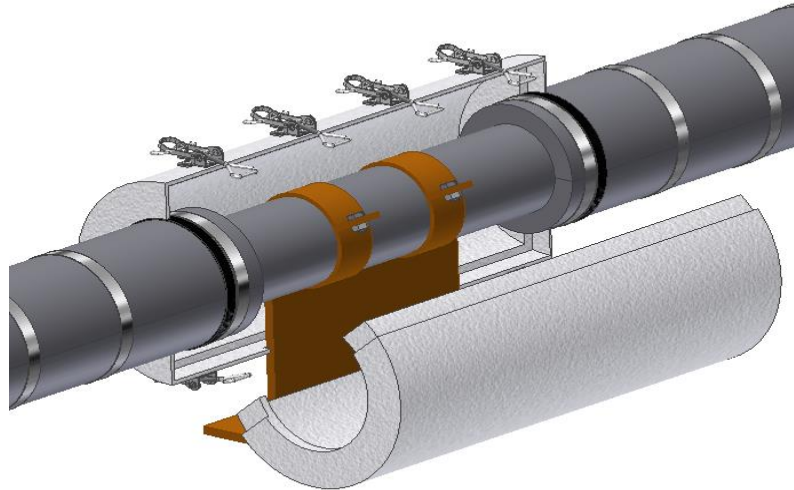
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Supporter and installation of  
Benarx Epoxy Box.

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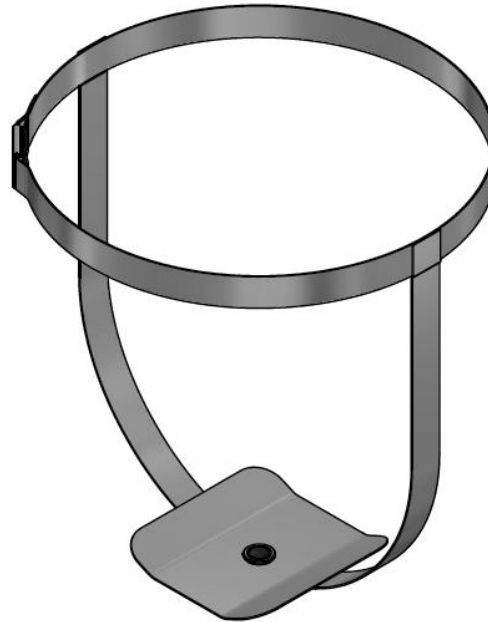
**11a.**

Installation of Benarx  
Drain Plug on T-piece.

**Note:**

The plug's threaded bush  
is located on underside of  
steel plate with a threaded  
nut, while the threaded  
plain washer on top of the  
steel plate.

Steel plate is fastened to  
XP tightening bands.



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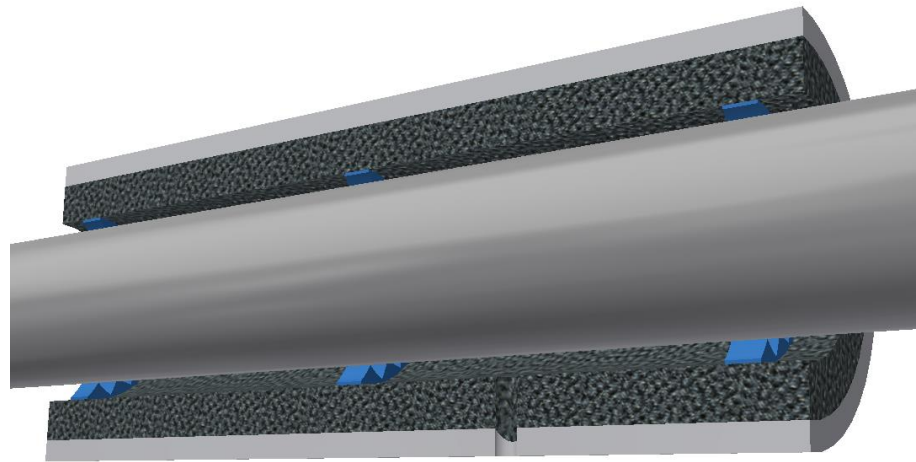
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11b.

Drain hole (Ø 22 mm).

A drain hole shall be made  
in the component prior to  
installation to avoid any  
damage to the paint  
system.



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11c.

Benarx Drain Plug should be situated away and into the insulation. Thereafter, fasten the XP tightening band according to ordinary procedures.

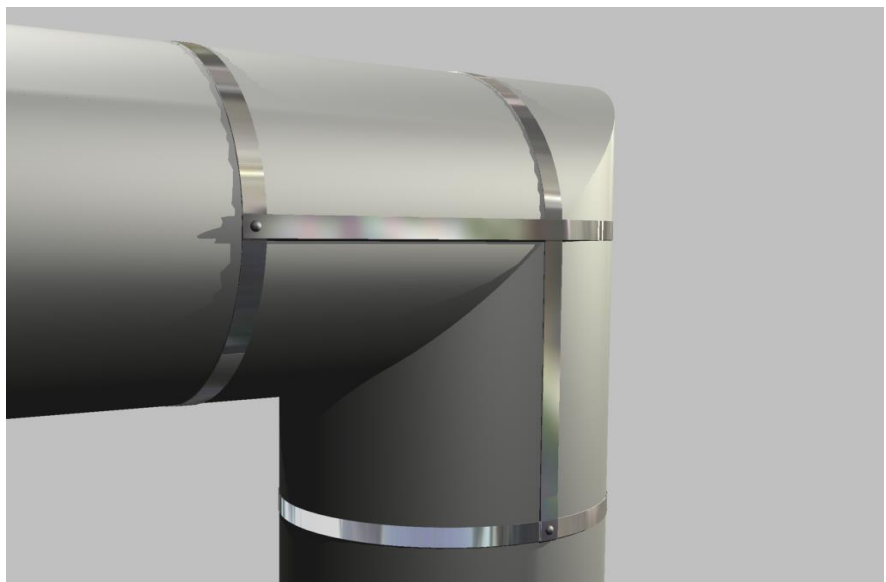
Apply Nitoseal SC N (white) on the steel plate, and in between the drain plug and insulation to secure a sealed connection.



12.

Installation of XP tightening band on angle bends.

XP tightening band is fastened with pop nails that is riveted flat (prior to installation).



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13.

Example of installation of end cover section, whole flatten in section and partly flatten in section.

