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Installation Manual Benarx ALL IN ONE - GRP wOryza

Installation Manual Benarx ALL IN ONE - GRP wOryza

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Table of Content

| | | |
|-------|--|----|
| 1 | Introduction | 3 |
| 1.1 | Field of application..... | 3 |
| 1.2 | Installation manual changes..... | 3 |
| 1.3 | Installation responsible..... | 3 |
| 1.4 | Start-up check | 3 |
| 2 | Tools, Materials and Protective Equipment..... | 4 |
| 2.1 | Tool list | 4 |
| 2.2 | Accessory list..... | 4 |
| 2.3 | Protective equipment list | 5 |
| 3 | Scope of Work | 6 |
| 3.1 | Overview..... | 6 |
| 3.1.1 | Before installation: | 6 |
| 3.1.2 | Components List:..... | 7 |
| 3.1.3 | After successful installation: | 9 |
| 4 | Accessories List..... | 10 |
| 5 | Installation of standard components..... | 10 |
| 5.1 | Application of sealant | 11 |
| 5.2 | 13 | |
| 5.3 | Installation of Straight Pipe Components | 14 |
| 5.4 | Installation of Bend Components | 21 |
| 5.5 | Installation of T-piece Components..... | 22 |
| 5.6 | Installation of Reducer Components | 23 |
| 6 | Installation of accessories | 24 |
| 6.1 | Adjustments and customizations of components | 24 |
| 6.2 | Installation on supports | 35 |
| 7 | Installation Procedure for class 6 & 7 | 53 |
| 8 | Installation Procedure for class 8 | 54 |

1 Introduction

1.1 Field of application

The purpose of this document is to give instructions how to install Benarx ALL IN ONE – GRP w/ Oryza in accordance with the manufacturers, Beerenberg, guidelines. These are the generic procedures and there might be specific requirements/details in relevant Purchase Orders which will require qualification of this manual.

Qualification of the installation manual for operational use shall be executed by Beerenberg Technology & Development department.

1.2 Installation manual changes

Only Beerenberg Technology & Development department is entitled to make changes to this document. For this manual the following assembly models have been used:

- 100539
- 2001781

1.3 Installation responsible

To install a Benarx ALL IN ONE – GRP w/ Oryza it is expected that worker have the necessary skills and training. Every person performing modification work is responsible for maintaining the products integrity on his/her own reputation and risk.

1.4 Start-up check

Product check:

Make a visual check before start up and verify that there are no damages or cracks on the product. Verify that all eccentric locks are fully intact and that all the parts of the Benarx ALL IN ONE – GRP w/ Oryza are present. Make sure that correct tools and materials are on site before installation starts.

If any damages are detected, Beerenberg is to be contacted for information on how to correctly proceed. All repair work shall be approved by Beerenberg before initiation.

2 Tools, Materials and Protective Equipment

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

Type of equipment listed herein is based on Beerenberg Services AS experience with works related to the GRP ALL IN ONE series. The list is not intended to be absolute an absolute requirement, more a guideline of necessary tools.

2.1 Tool list

| Item no. | Item |
|----------|--------------------------------|
| 1 | Hammer (rubber) |
| 3 | Vise grip (pliers) |
| 5 | Marker pen |
| 6 | Metric measure (3 m) |
| 7 | Knife (type Mora) |
| 8 | Sheet metal shears |
| 10 | Caulking gun |
| 11 | Inch ruler (2 m) |
| 18 | Stanley knife |
| 20 | Tightening tool |
| 21 | Locking plier, $\frac{3}{4}$ " |

2.2 Accessory list

| Item no. | Item |
|----------|-------------------|
| 1 | Tension band 1/2" |
| 2 | Endcap |
| 3 | Z-clips 1/2" |
| 5 | Sealant |

2.3 Protective equipment list

| Item no. | Item |
|----------|-----------------------|
| 1 | Dust mask (P2 filter) |
| 2 | Gloves (cut secure) |
| 3 | Safety overall |
| 4 | Safety eye wear |
| 5 | Safety shoes |
| 6 | Helmet |

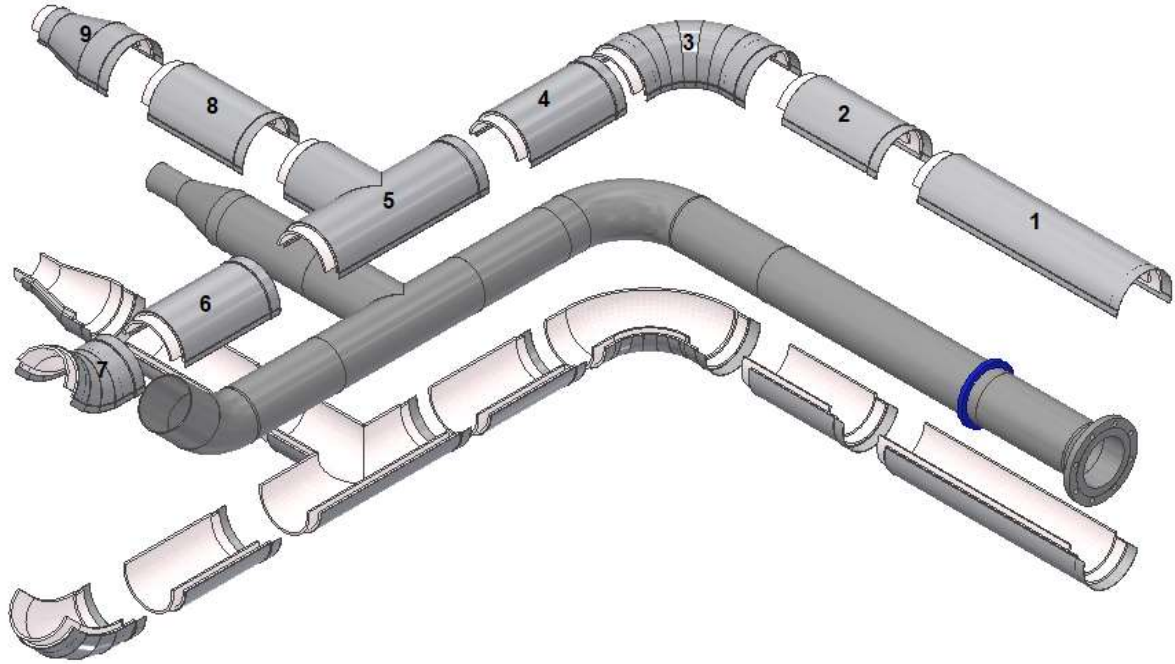
Notes:

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

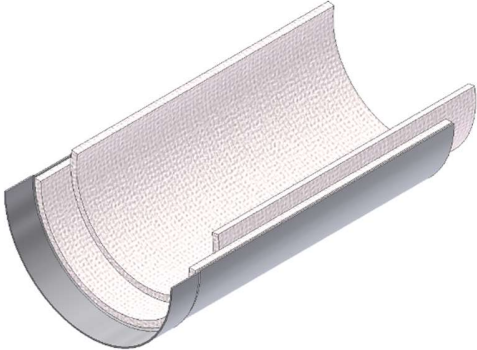

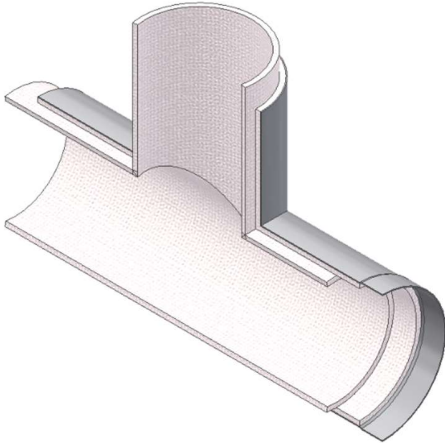
3 Scope of Work

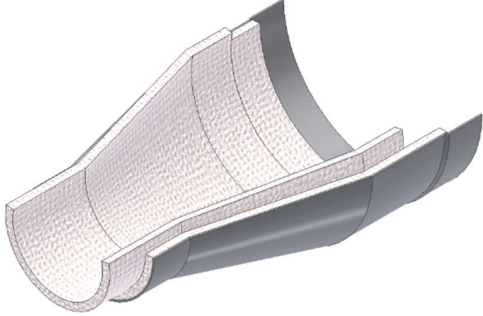
3.1 Overview

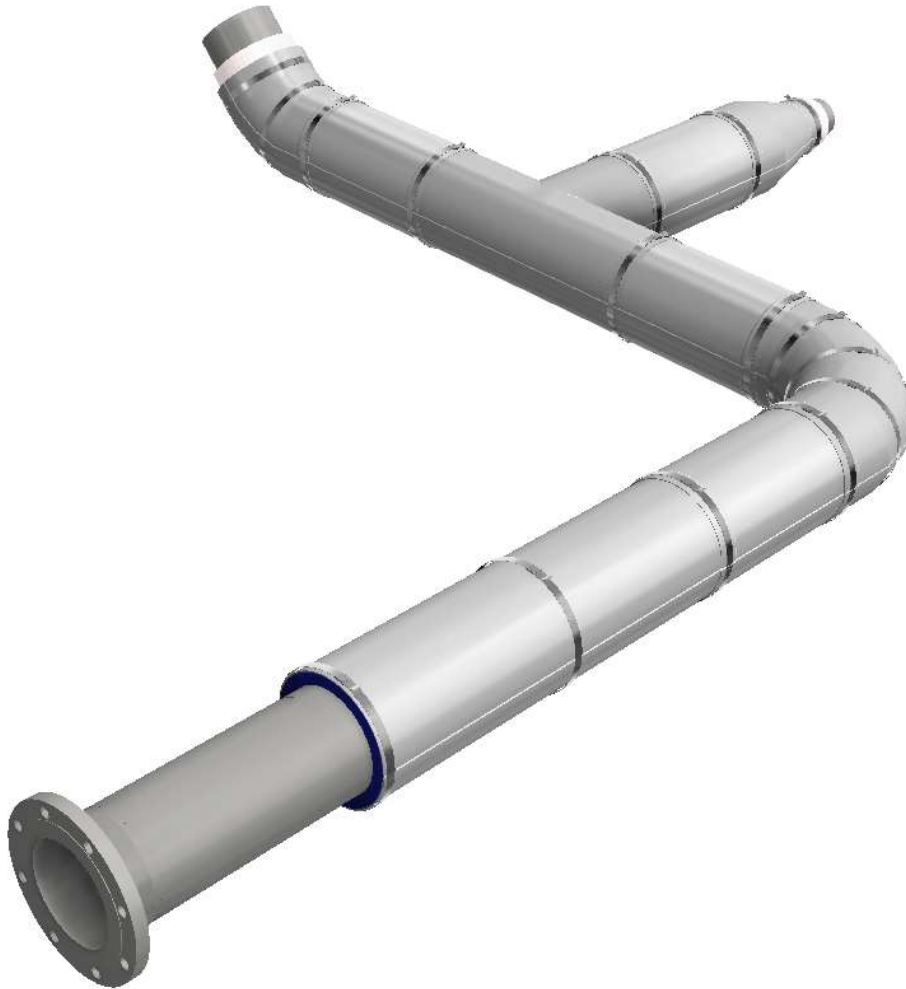
3.1.1 Before installation:







3.1.2 Components List:

| Component | Standard components | Illustration |
|---------------|--|--|
| Straight Pipe | |  |
| Bend | <p><i>90° Bend</i> <i>45° Bend</i> <i>30° Bend</i></p> |  |
| T-Piece | <p><i>90° T-Piece</i> <i>45° T-Piece</i></p> |  |

| | | |
|---------|--------------------------------------|--|
| Reducer | Centric Reducer Eccentric Reducer |  |
|---------|--------------------------------------|--|

3.1.3 After successful installation:

4 Accessories List

| Accessories number | Description | Illustration |
|--------------------|--|---|
| 1. | <p><i>Tightening band</i></p> <p>Supplied with 200 mm overlap.</p> |  |
| 2. | <p>End cap</p> |  |
| 3. | <p><i>Z-clips</i></p> |  |
| 4. | <p><i>Sealant</i></p> |  |

5 Installation of standard components

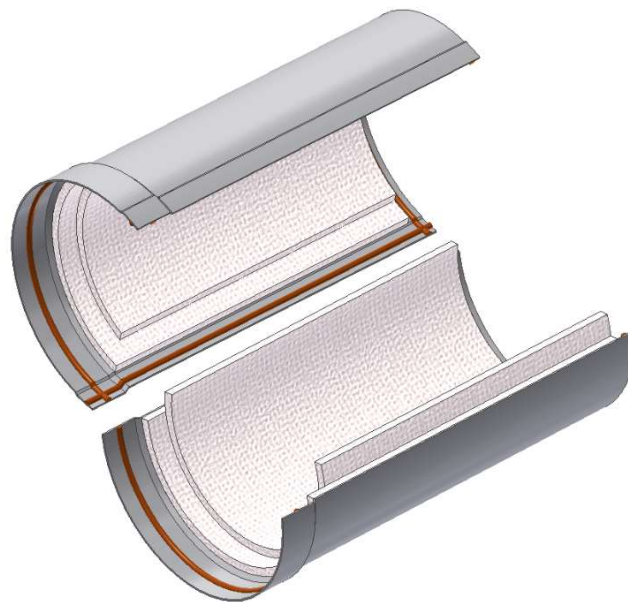
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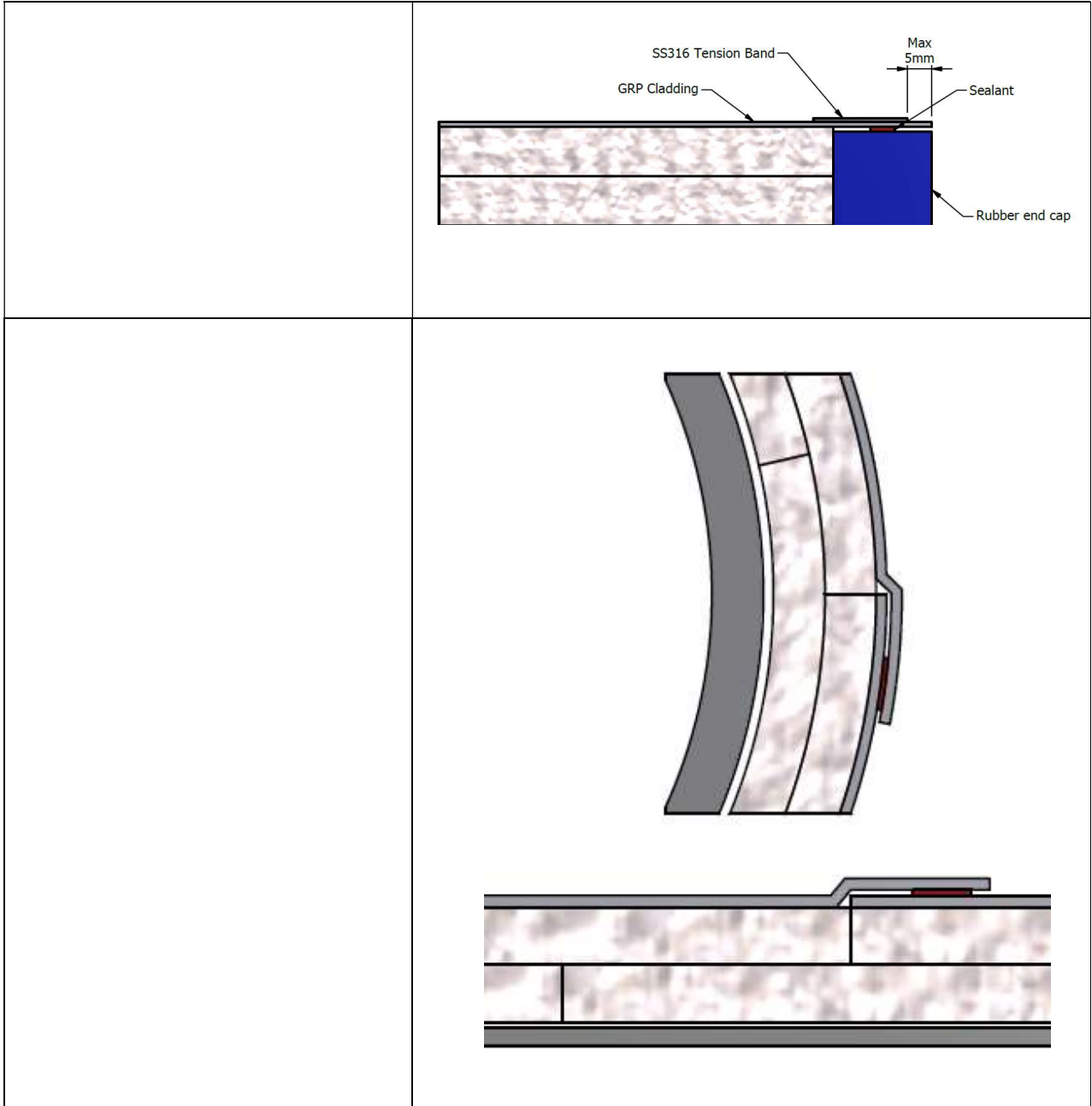
5.1 Application of sealant

The main purpose of applying sealant is to ensure a watertight barrier into the Pipe Shell. This is to prevent the Pipe Shell from absorbing water.

Secondly, sealant can be applied for the GRP to provide a water tight barrier, isolating the interior from environmental exposition.

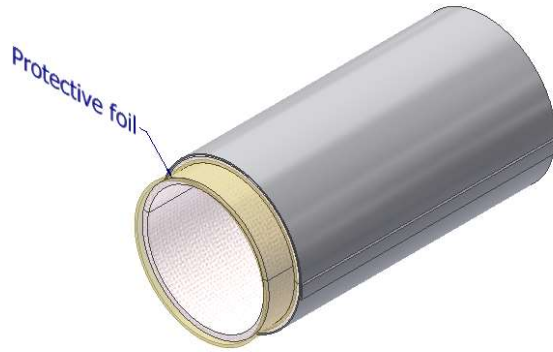
Nitoseal SC N can be used as sealing compound on outer joints with the purpose of preventing water ingress.







5.2

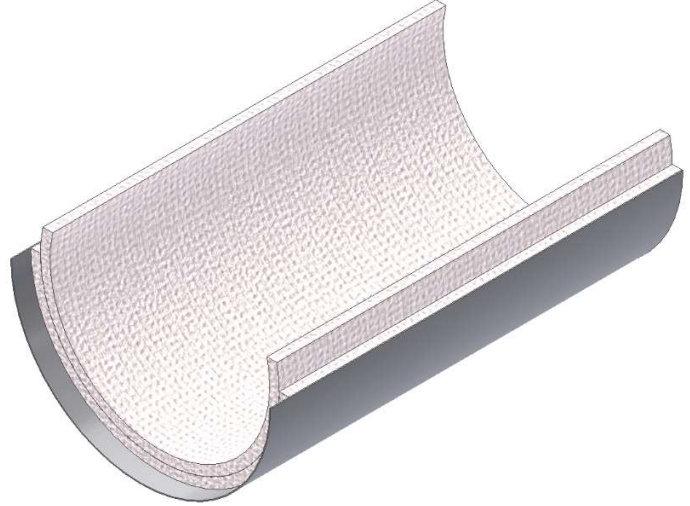
Do not remove protection until the pieces is at the work site



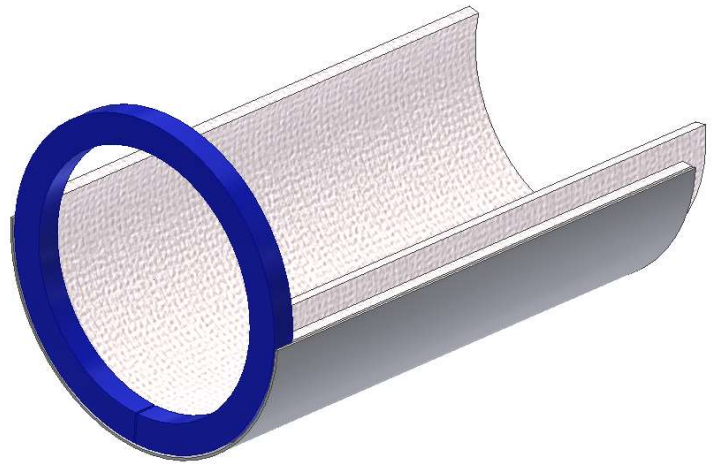
5.3 Installation of Straight Pipe Components

| | |
|----------------------|--|
| <p>STEP 1</p> |  |
| <p>STEP 2</p> |  |

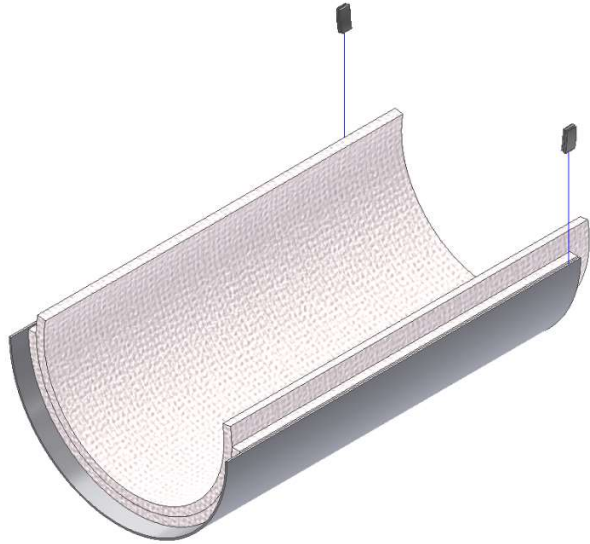
STEP 3



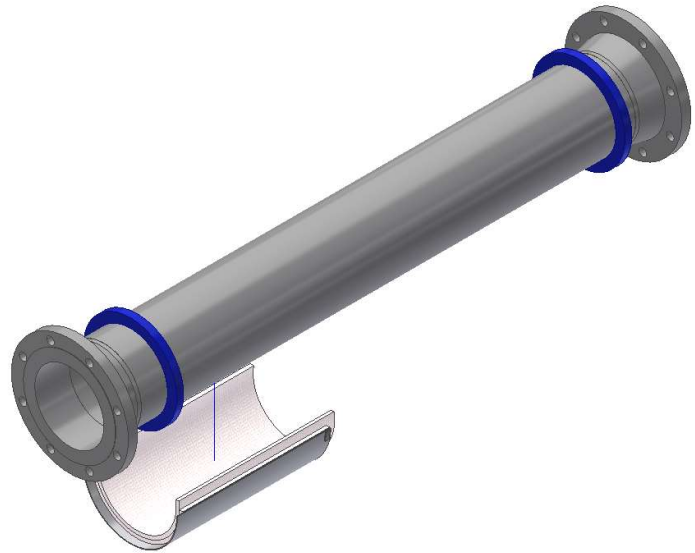
STEP 4



STEP 5



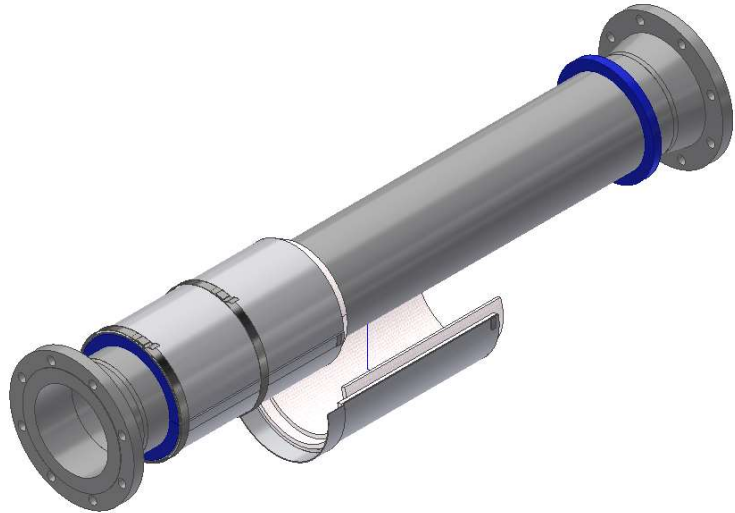
STEP 6



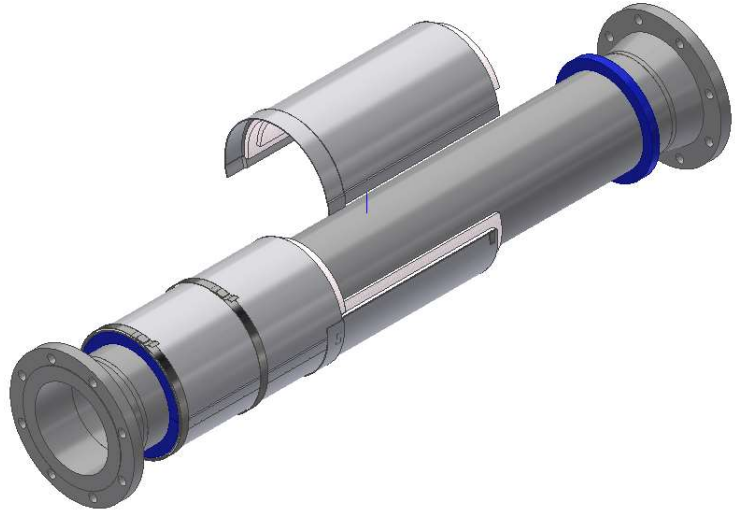
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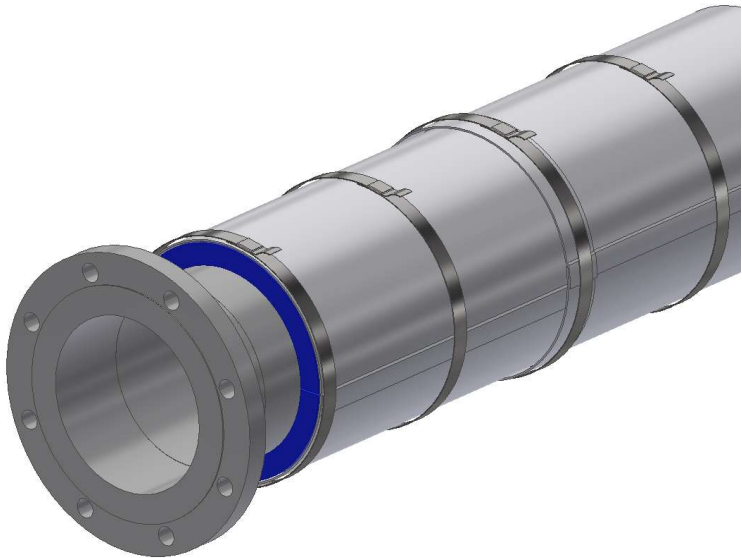
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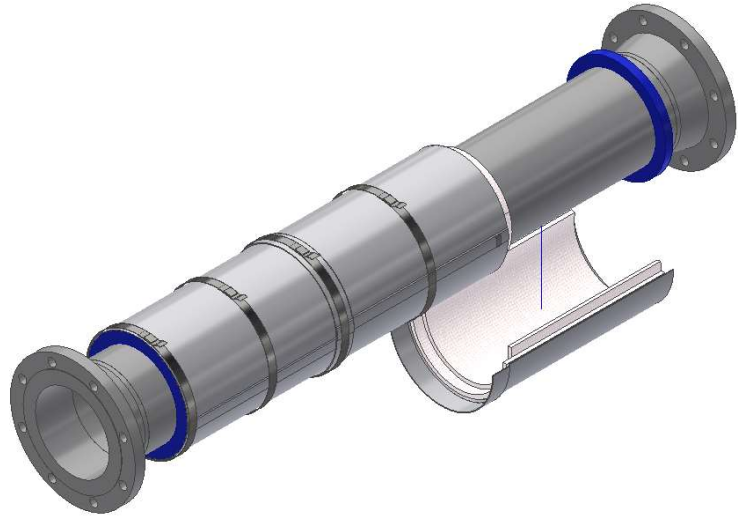
STEP 9



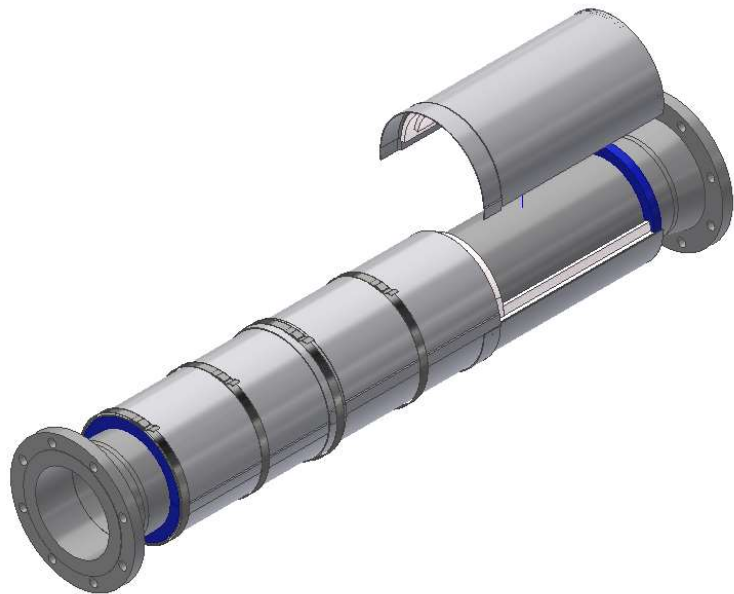
VRIDD SKÁL



STEP 10



STEP 11

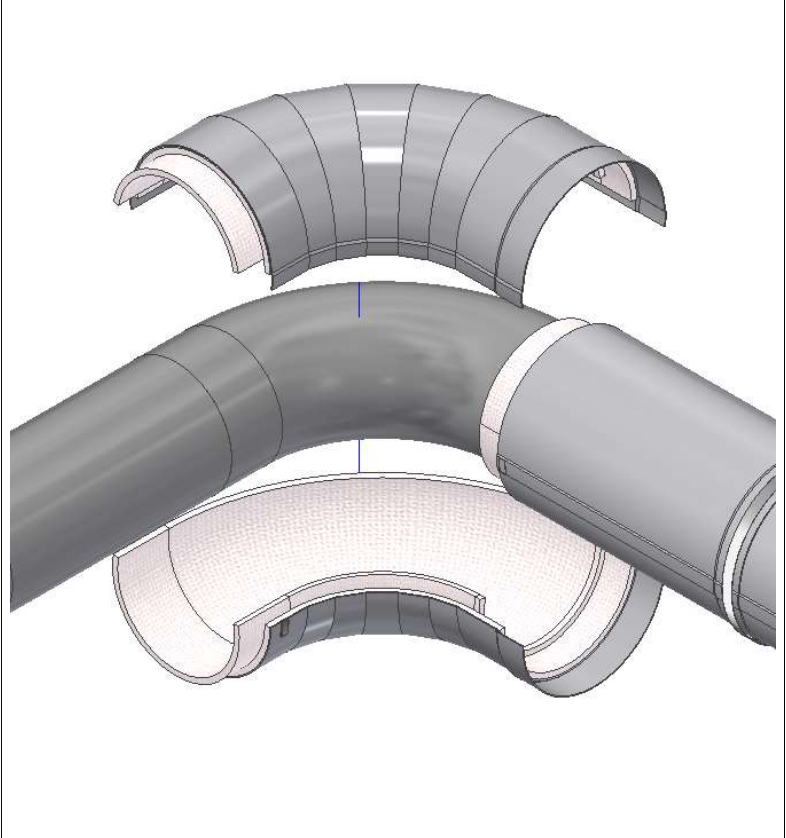


STEP 12

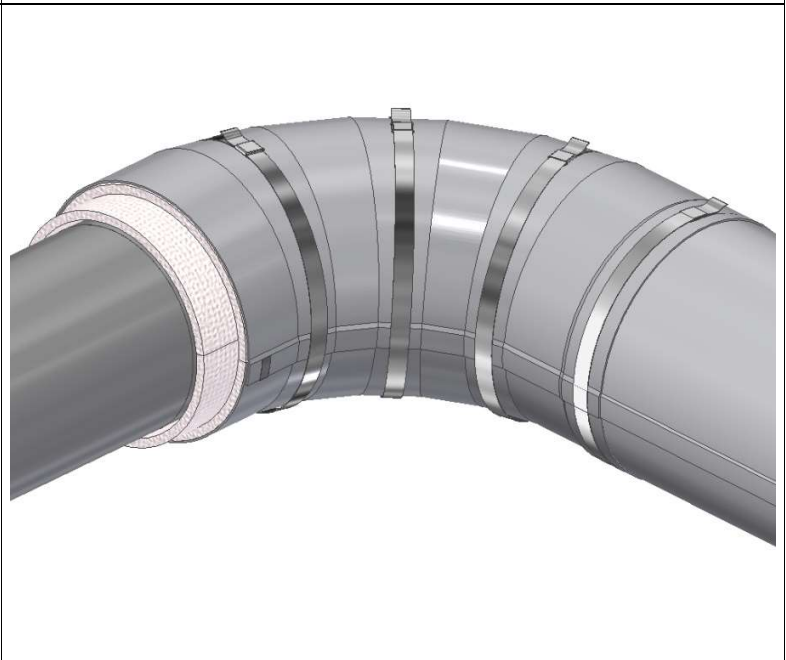


5.4 Installation of Bend Components

STEP 1

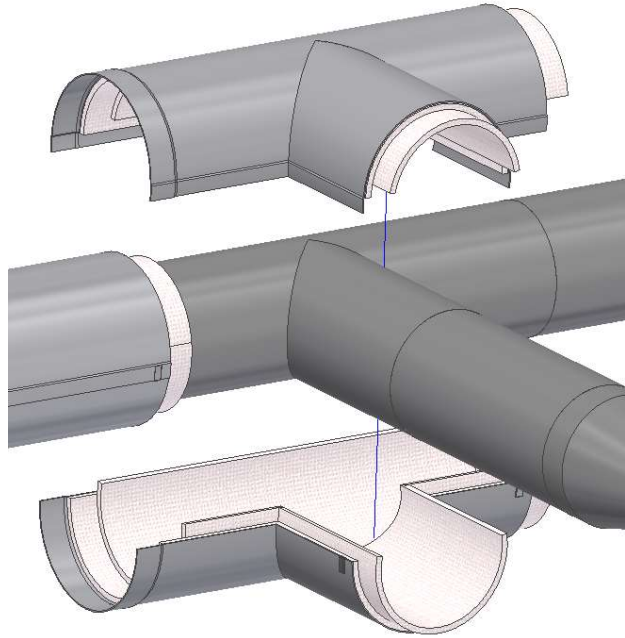


STEP 2

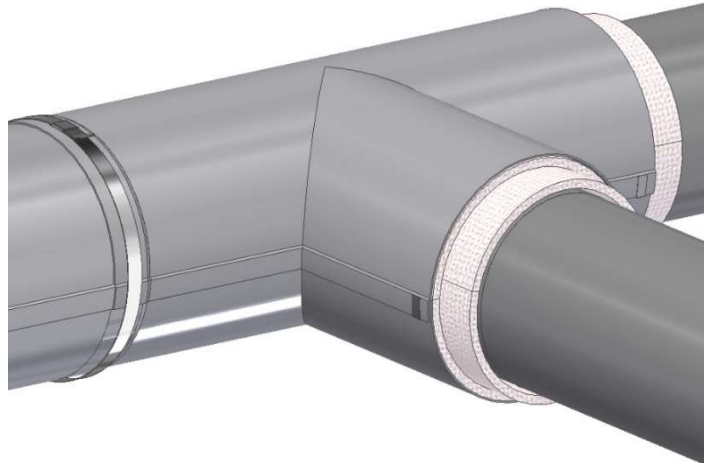


5.5 Installation of T-piece Components

STEP 1

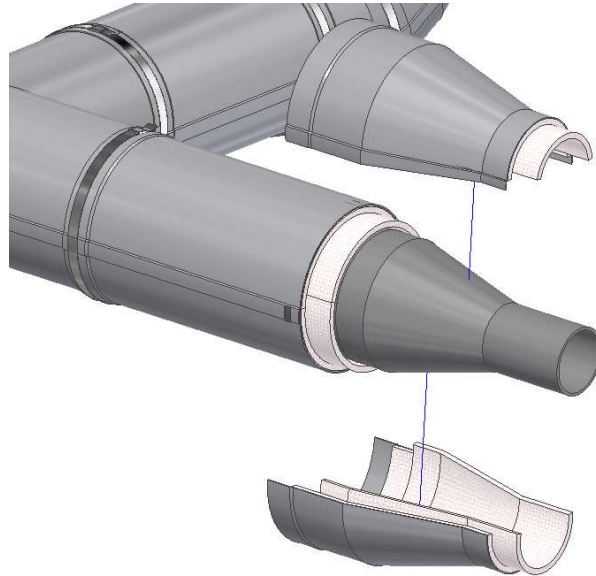


STEP 2



5.6 Installation of Reducer Components

STEP 1



STEP 2

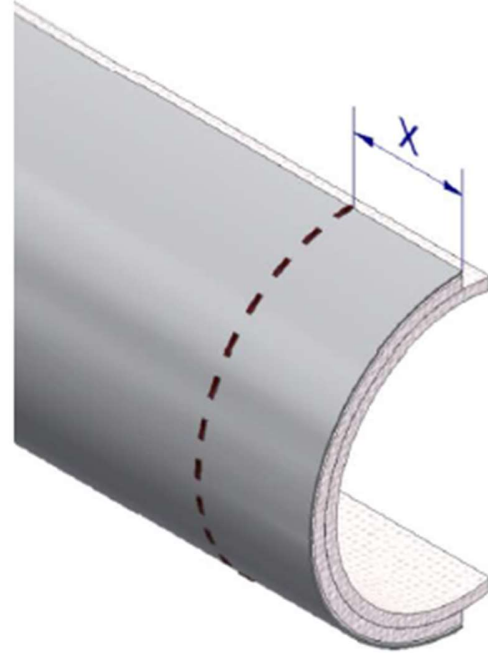


6 Installation of accessories

6.1 Adjustments and customizations of components

OPTION 1

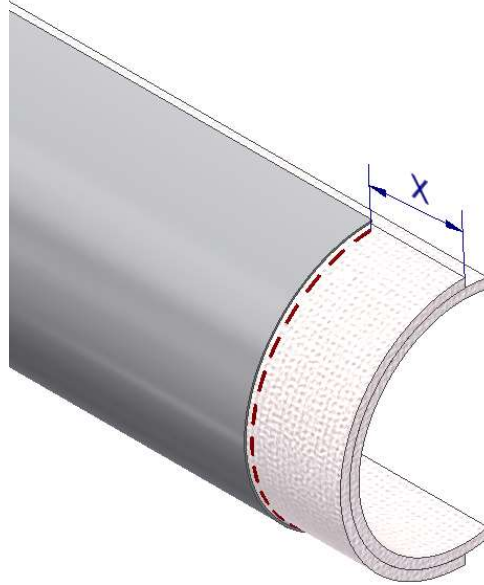
STEP 1



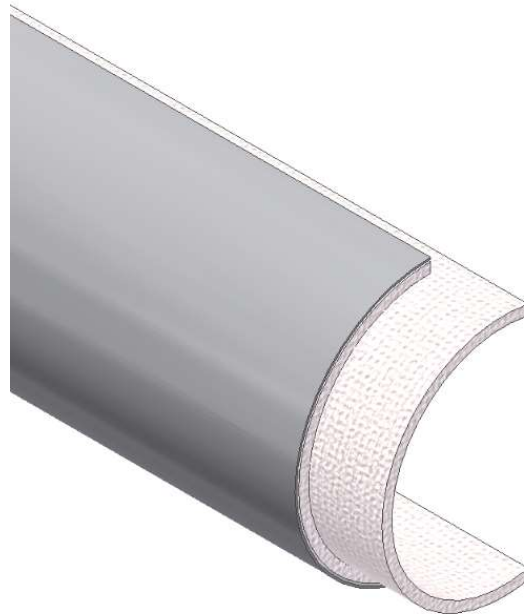
| DETAIL A - B | | |
|--------------|-------------|----------|
| Type | Overlapp mm | Diameter |
| GPP | 30 | ≤ 300 |
| GPP | 50 | > 301 |
| GPP | 100 | > 1001 |
| ISO | 20 | ≤ 300 |
| ISO | 30 | > 301 |
| ISO | 50 | > 1001 |

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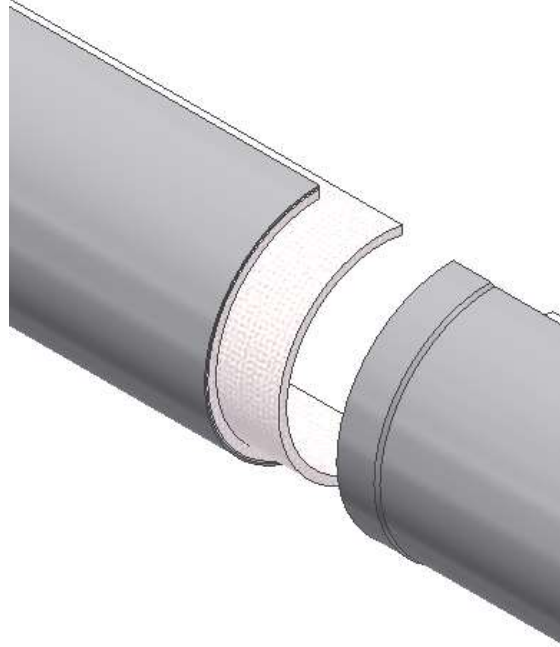
STEP 2



STEP 3



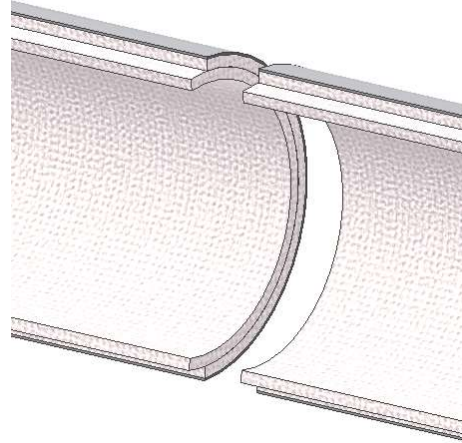
STEP 4



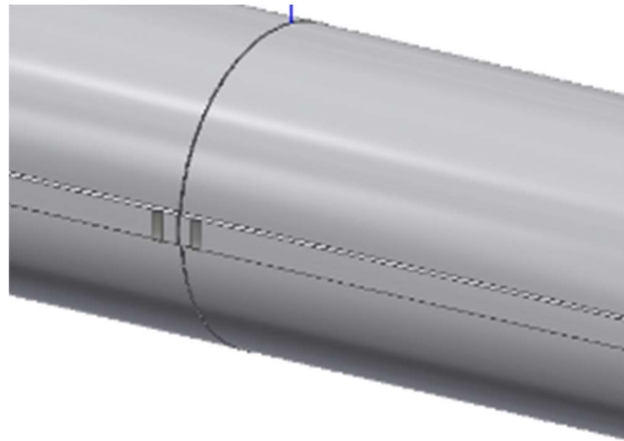
STEP 5



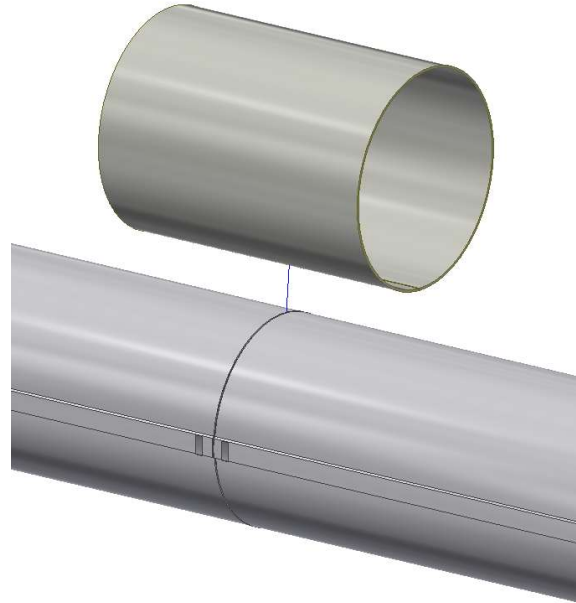
**OPTION 2 $\leq 60^{\circ}\text{C}$
STEP 1**



STEP 2

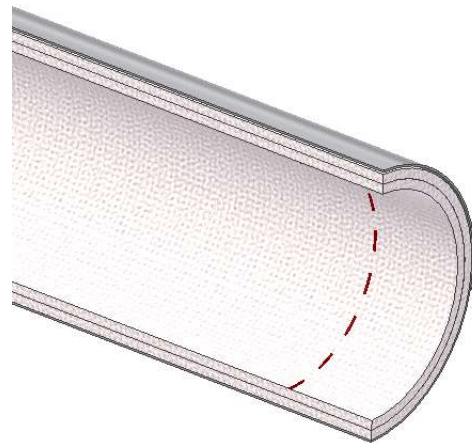


STEP 3



OPTION 3 $\geq 61^{\circ}\text{C}$

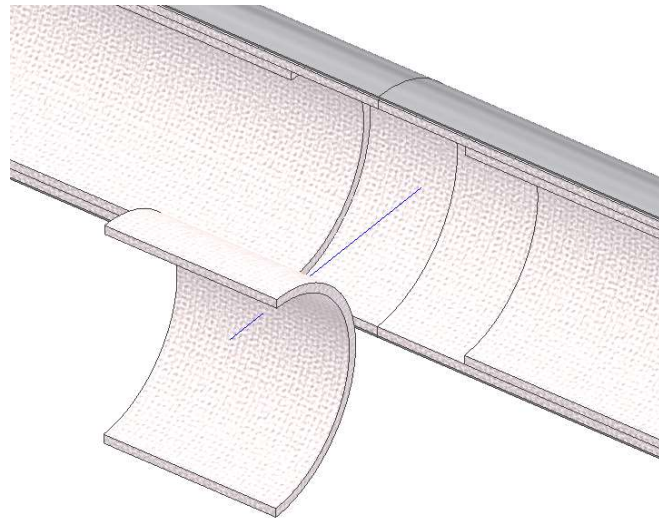
STEP 1



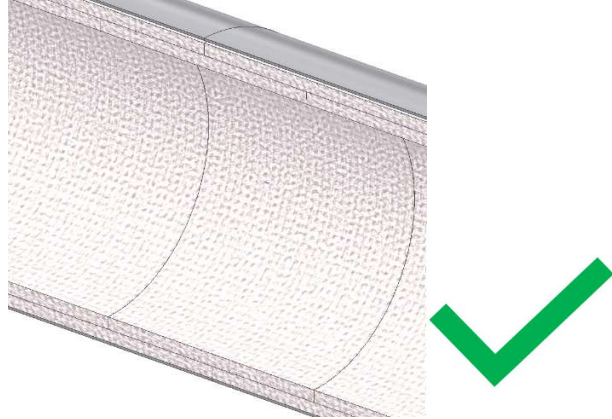
STEP 2



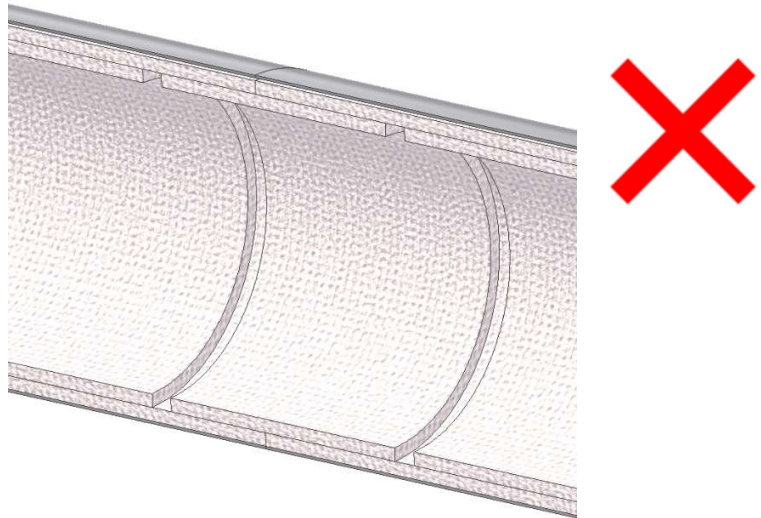
STEP 3



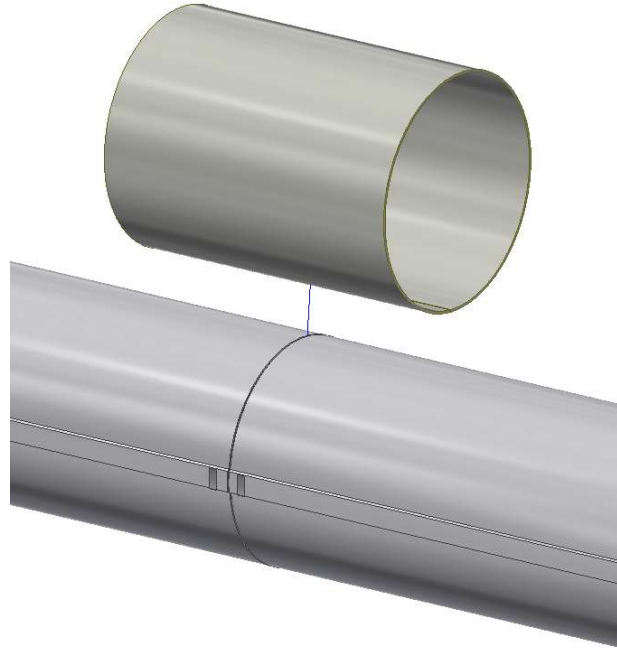
CORRECT INSTALLATION



INCORRECT INSTALLATION

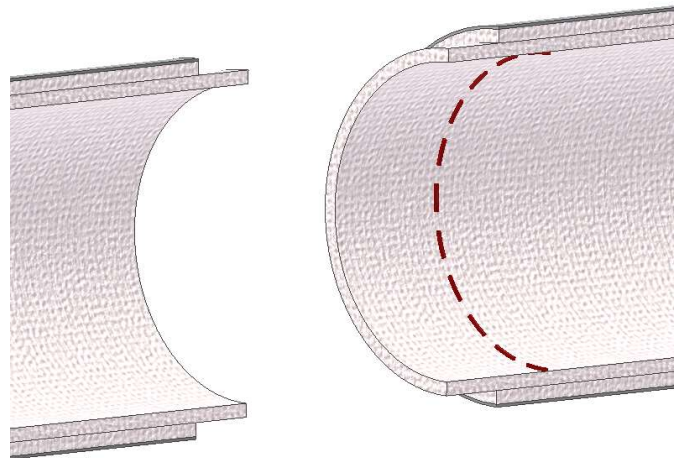


STEP 4

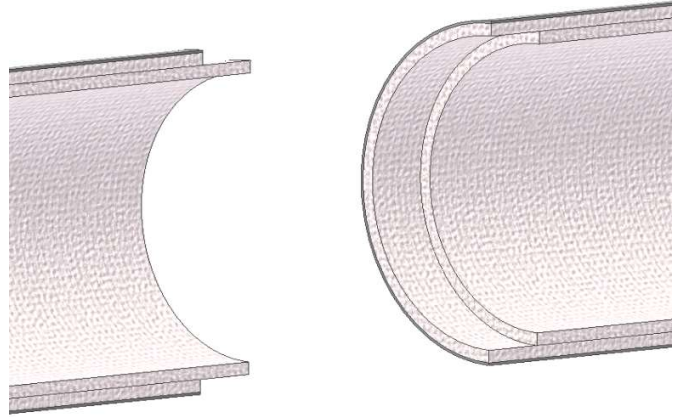


OPTION 4

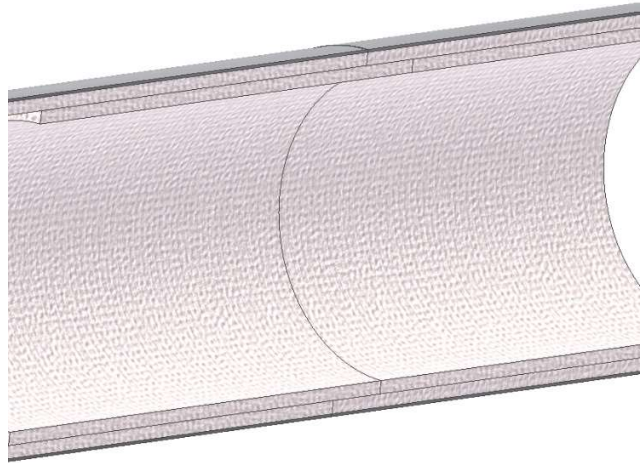
STEP 1



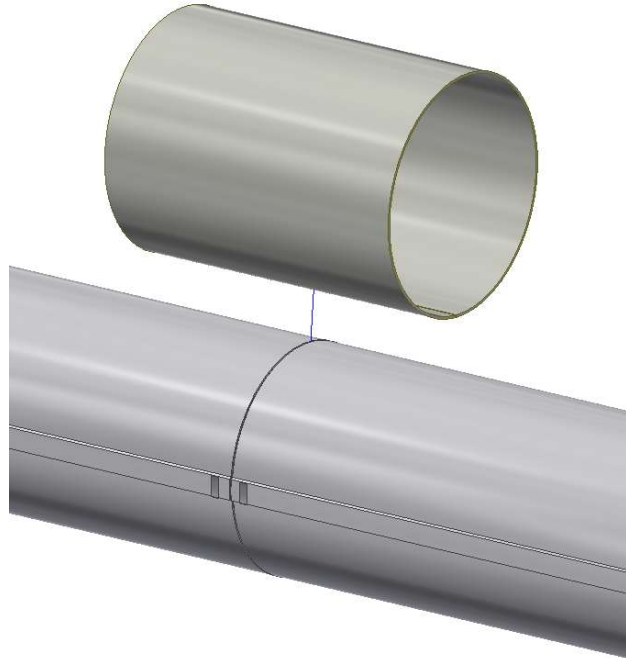
STEP 2



STEP 3



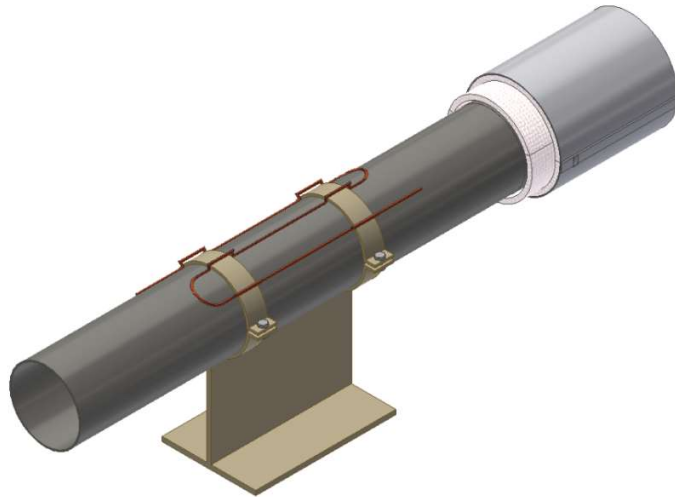
STEP 4



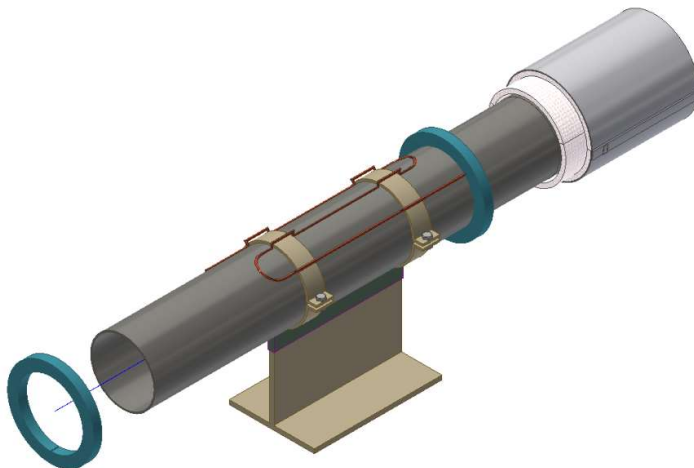
6.2 Installation on supports

CLAMPED SUPPORT

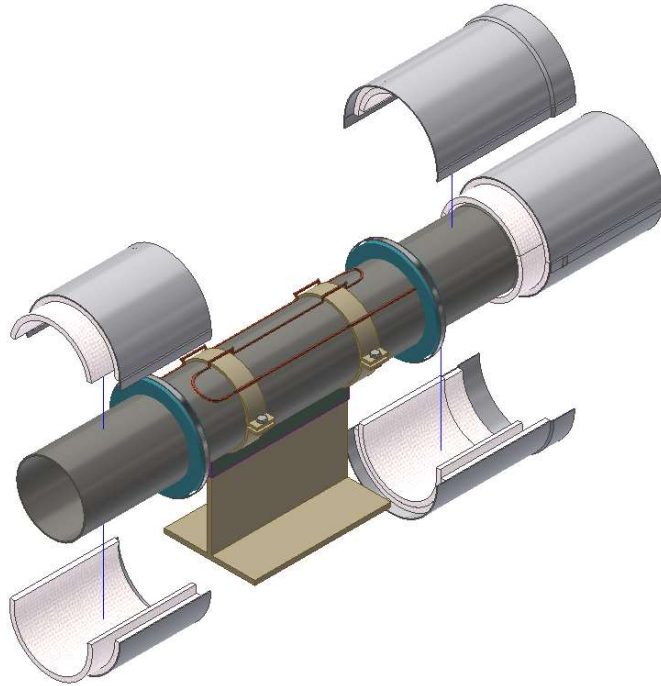
STEP 1



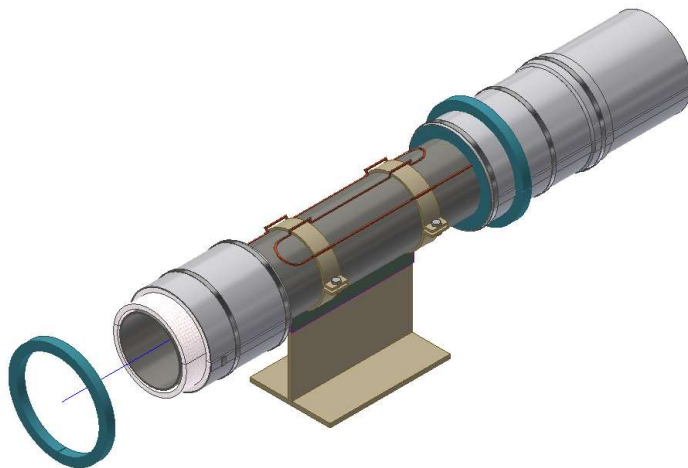
STEP 2



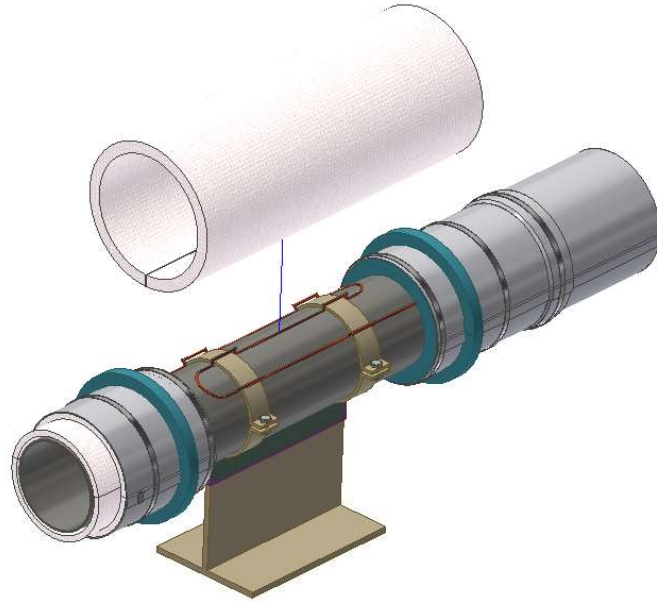
STEP 3



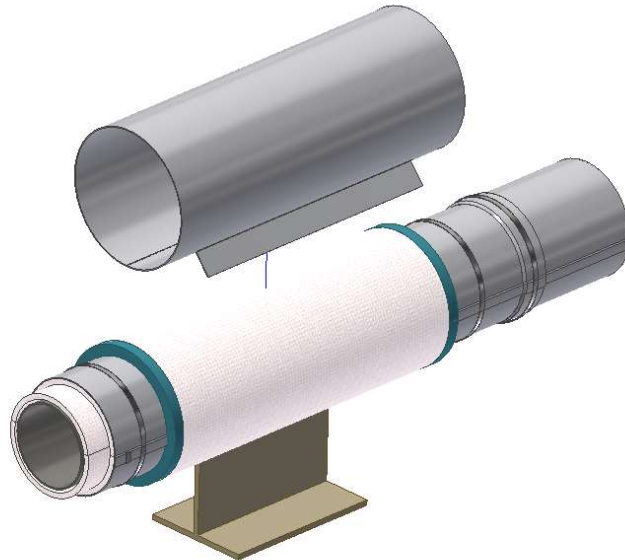
STEP 4



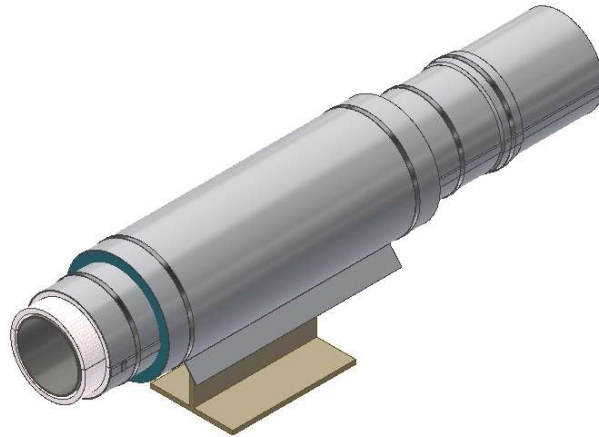
STEP 5



STEP 6



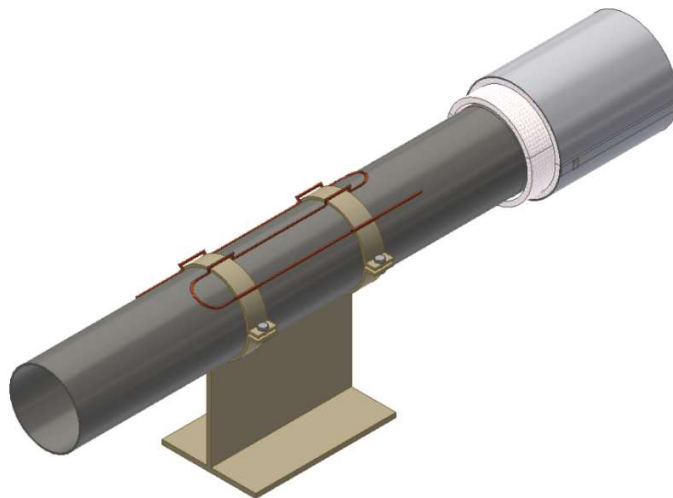
FINAL ASSEMBLY

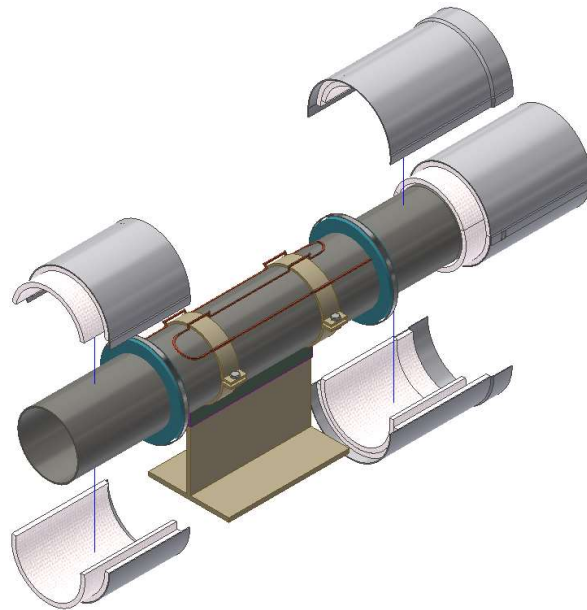
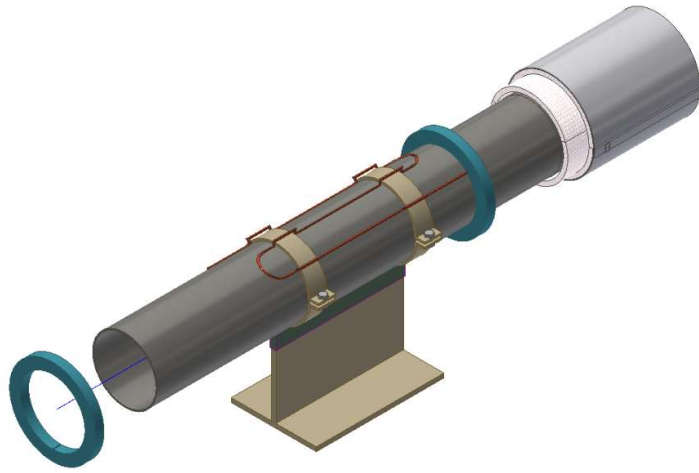


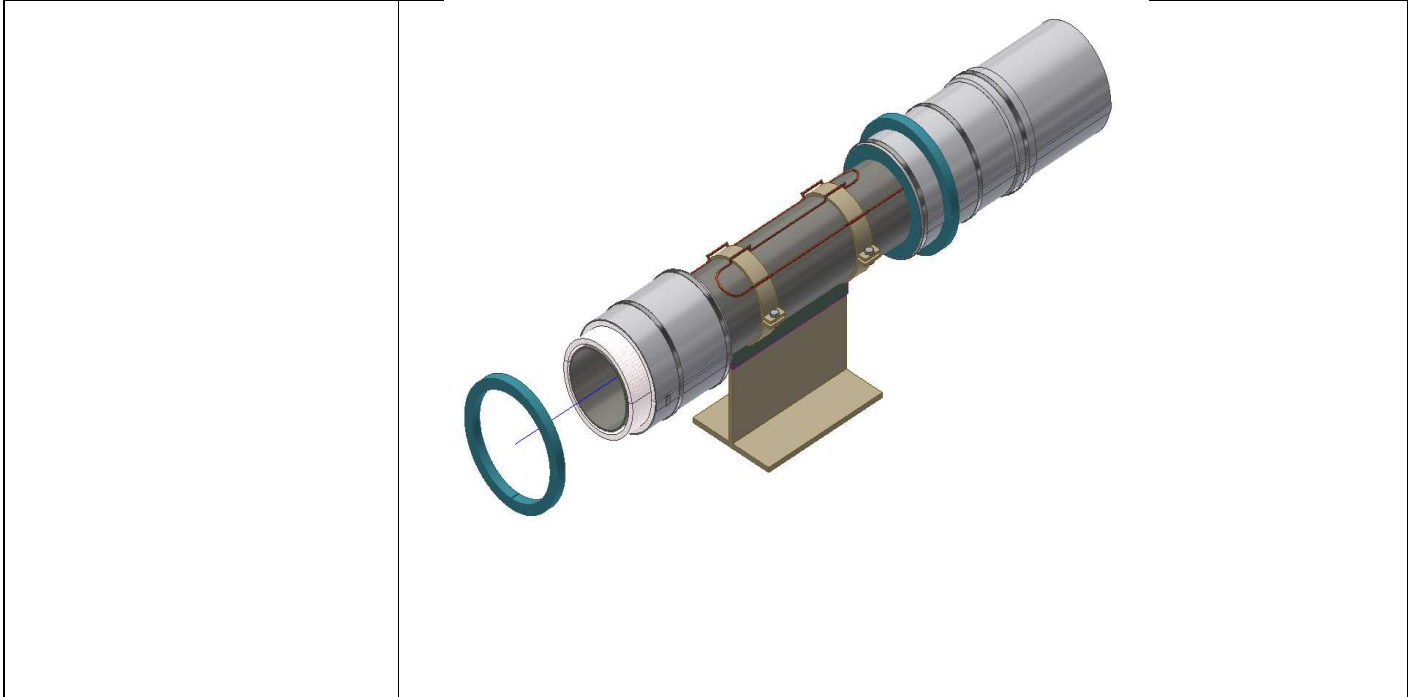
CLAMPED SUPPORT

GRP ALL IN ONE

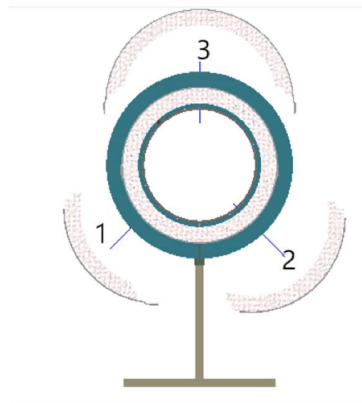
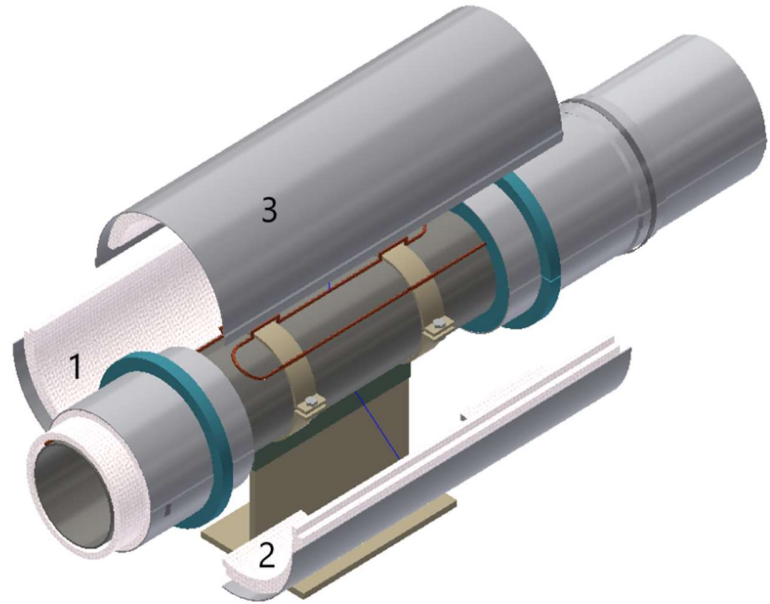
STEP 1

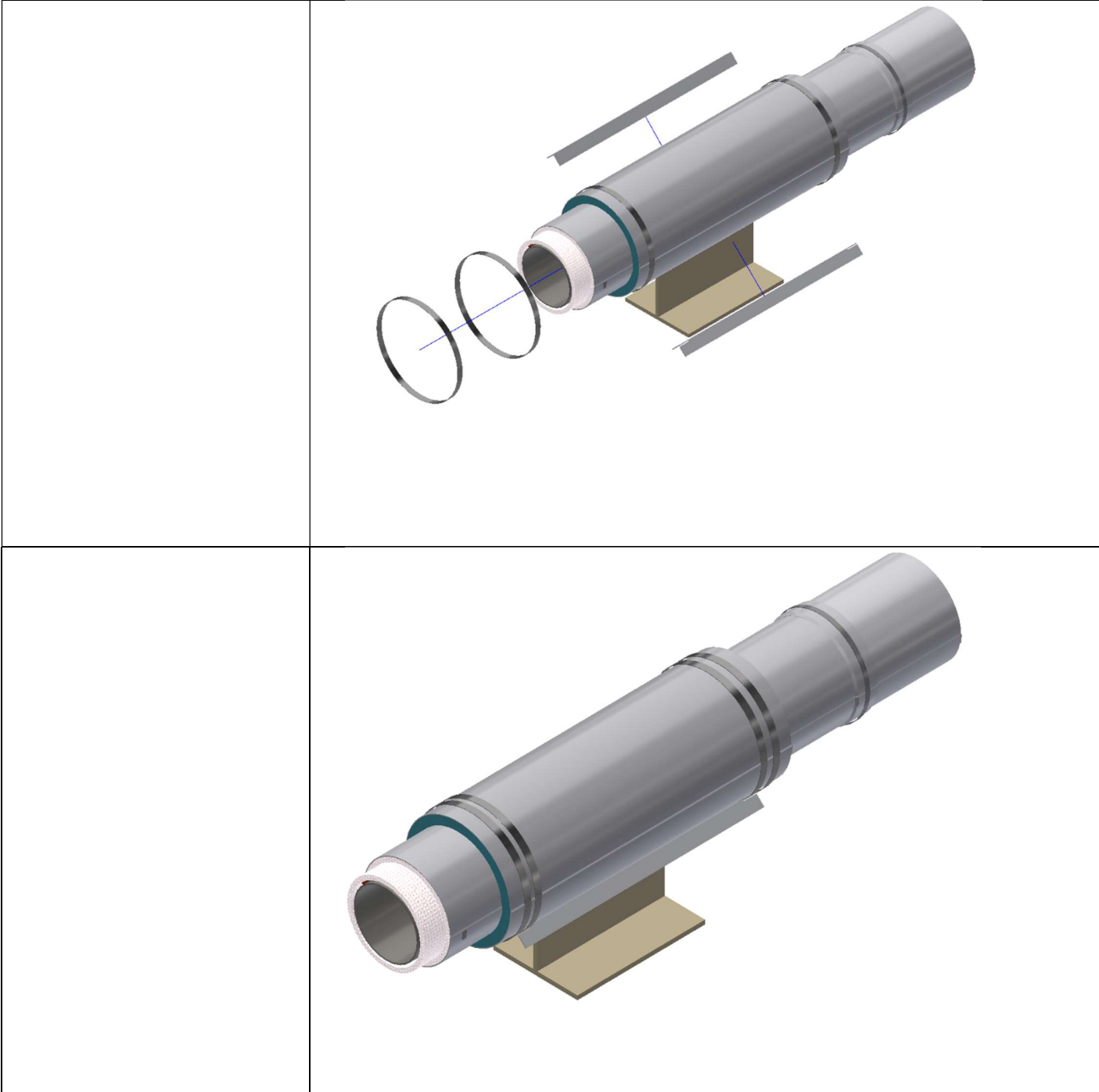


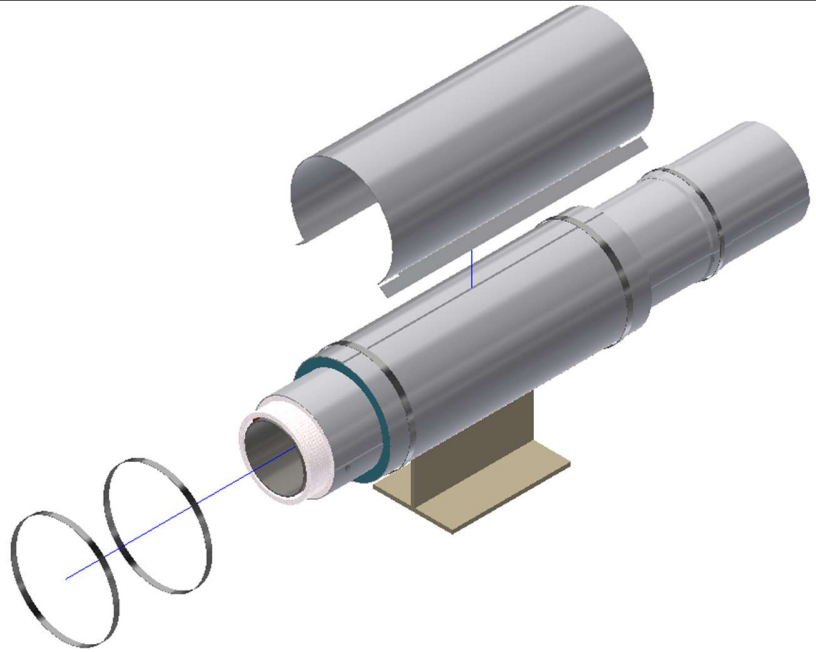
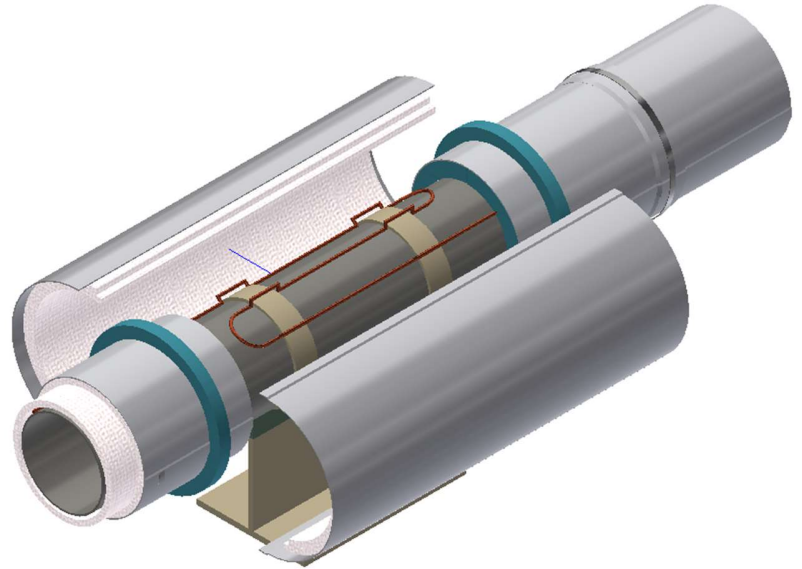


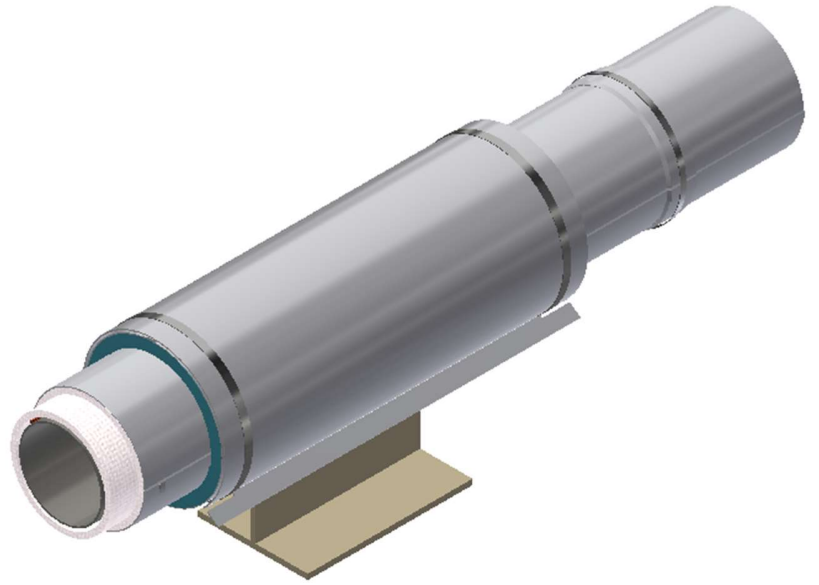


**GRP ALL IN ONE
CLADDING WITH 3
PARTS**



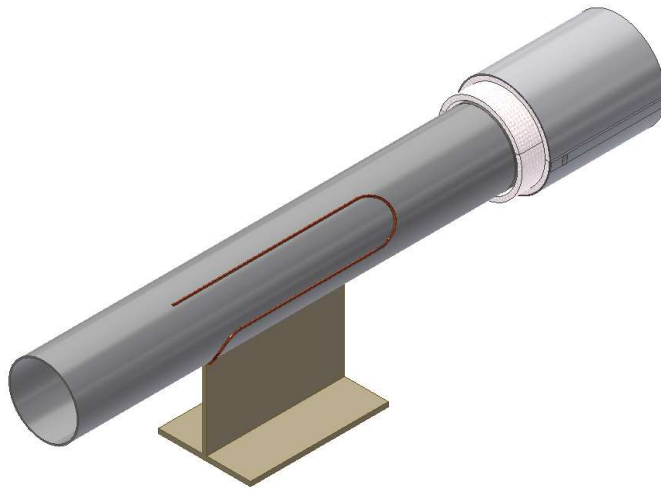




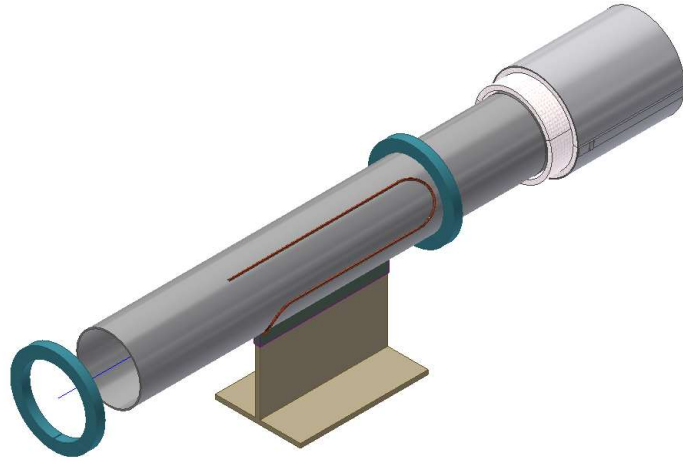


WELDED SUPPORT

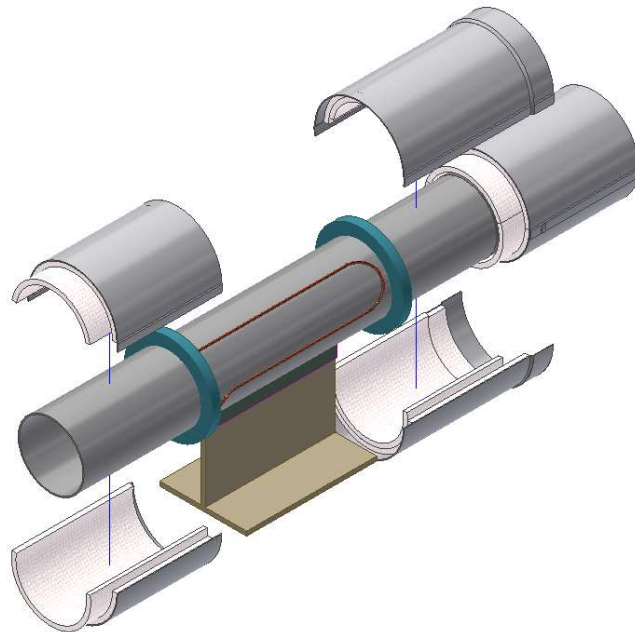
STEP 1



STEP 2

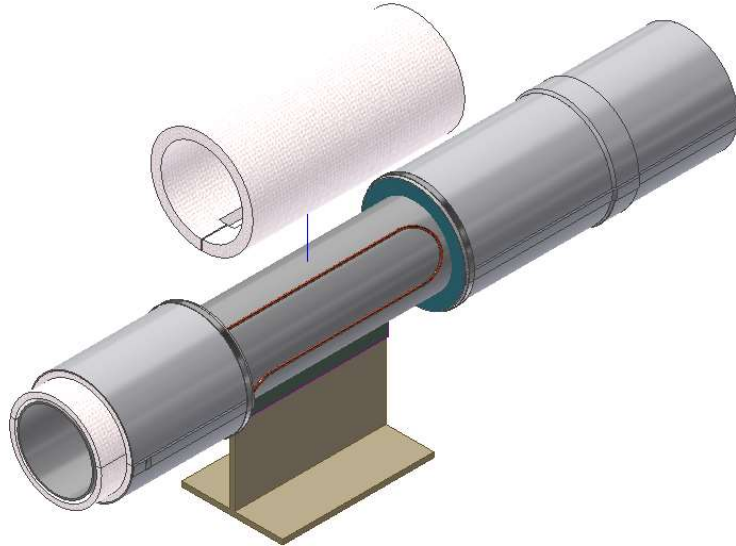


STEP 3

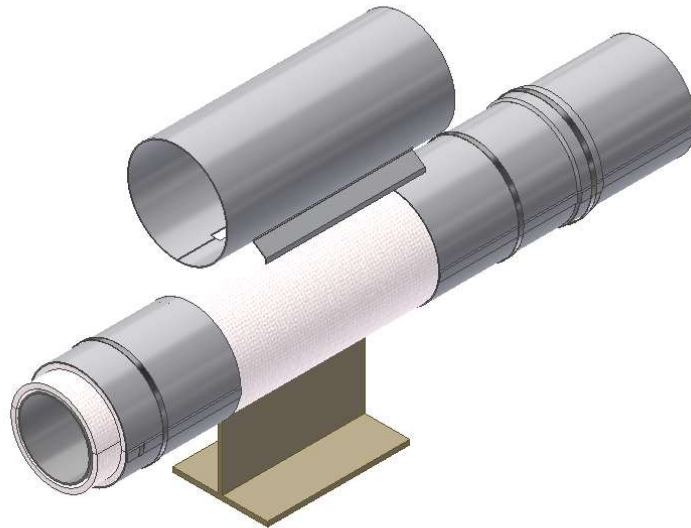


SOLUTION 1**STEP 4**

Temporary tightening bands are placed over the rubber end caps to ensure secure attachment

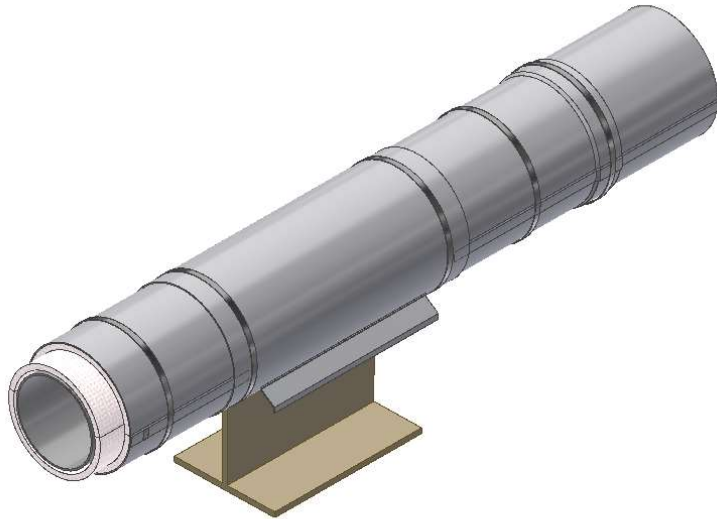
**STEP 5**

Remove temporary tightening bands



FINAL ASSEMBLY

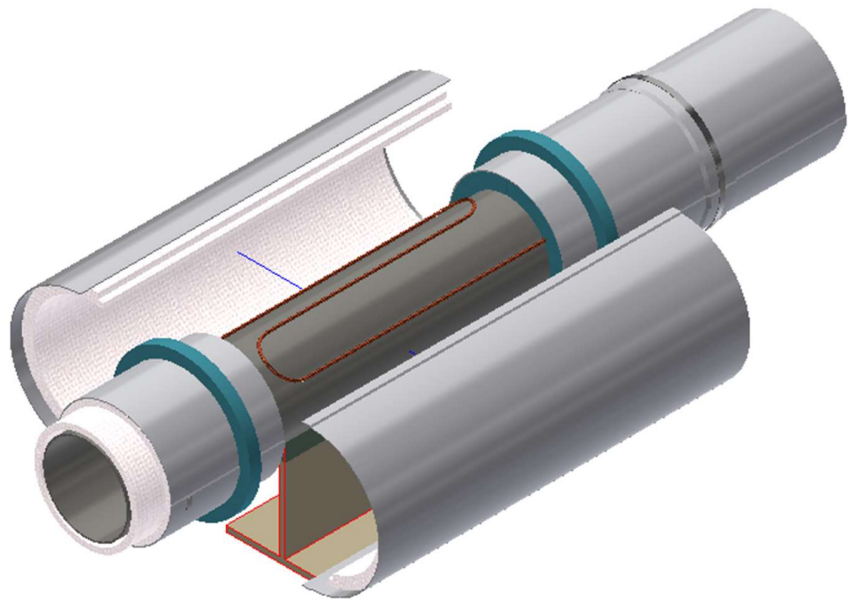
SOLUTION 1



SOLUTION 2

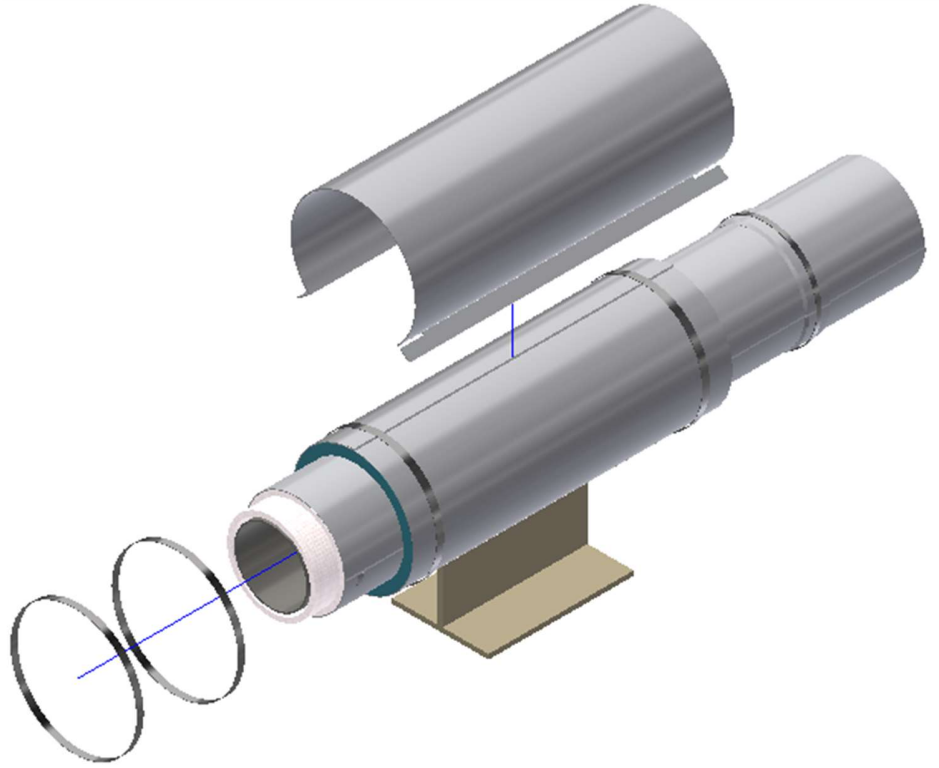
ALL IN ONE TWO PARTS

STEP 4



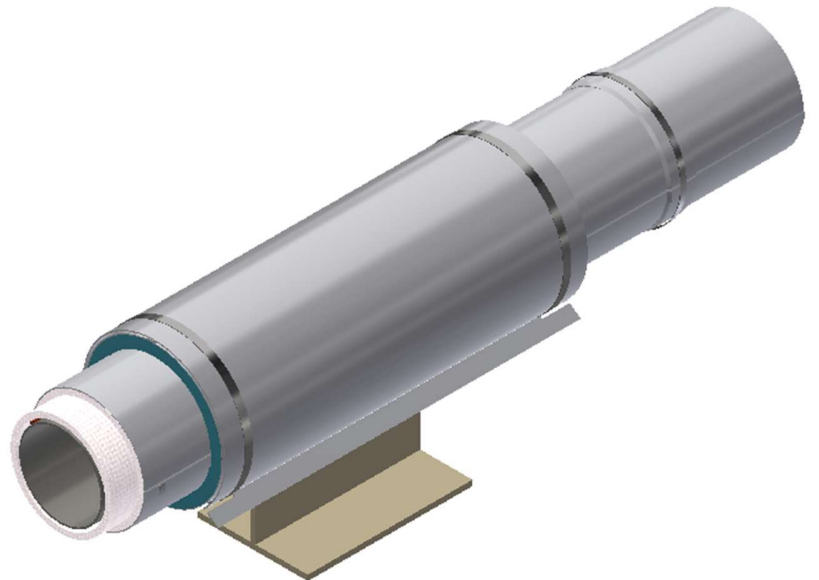
**INSTALL OMEGA
PROFILE**

STEP 5



FINAL ASSEMBLY

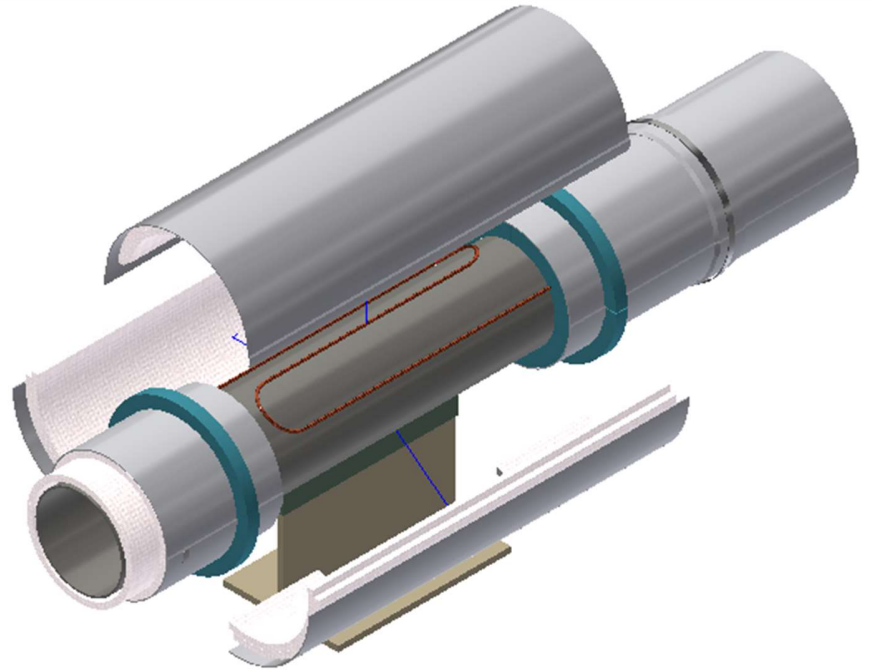
SOLUTION 2



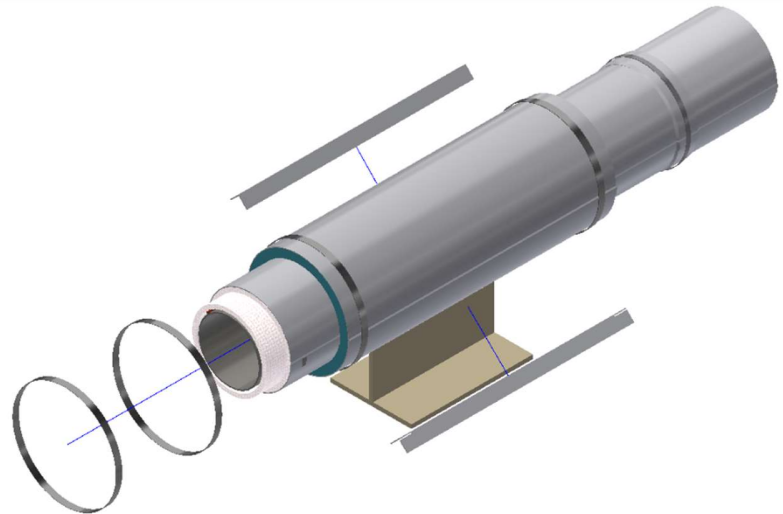
SOLUTION 3

**GRP ALL IN ONE IN 3
PARTS**

STEP 4



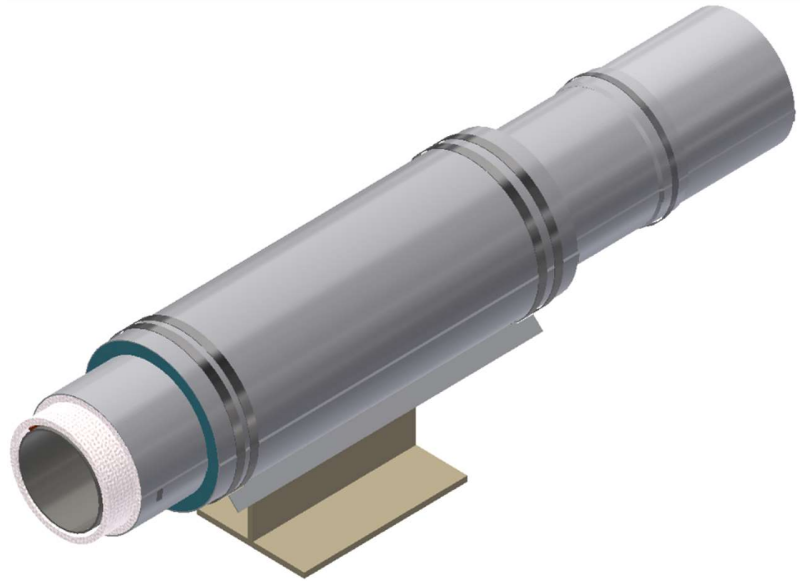
STEP 5



FINAL ASSEMBLY

SOLUTION 3

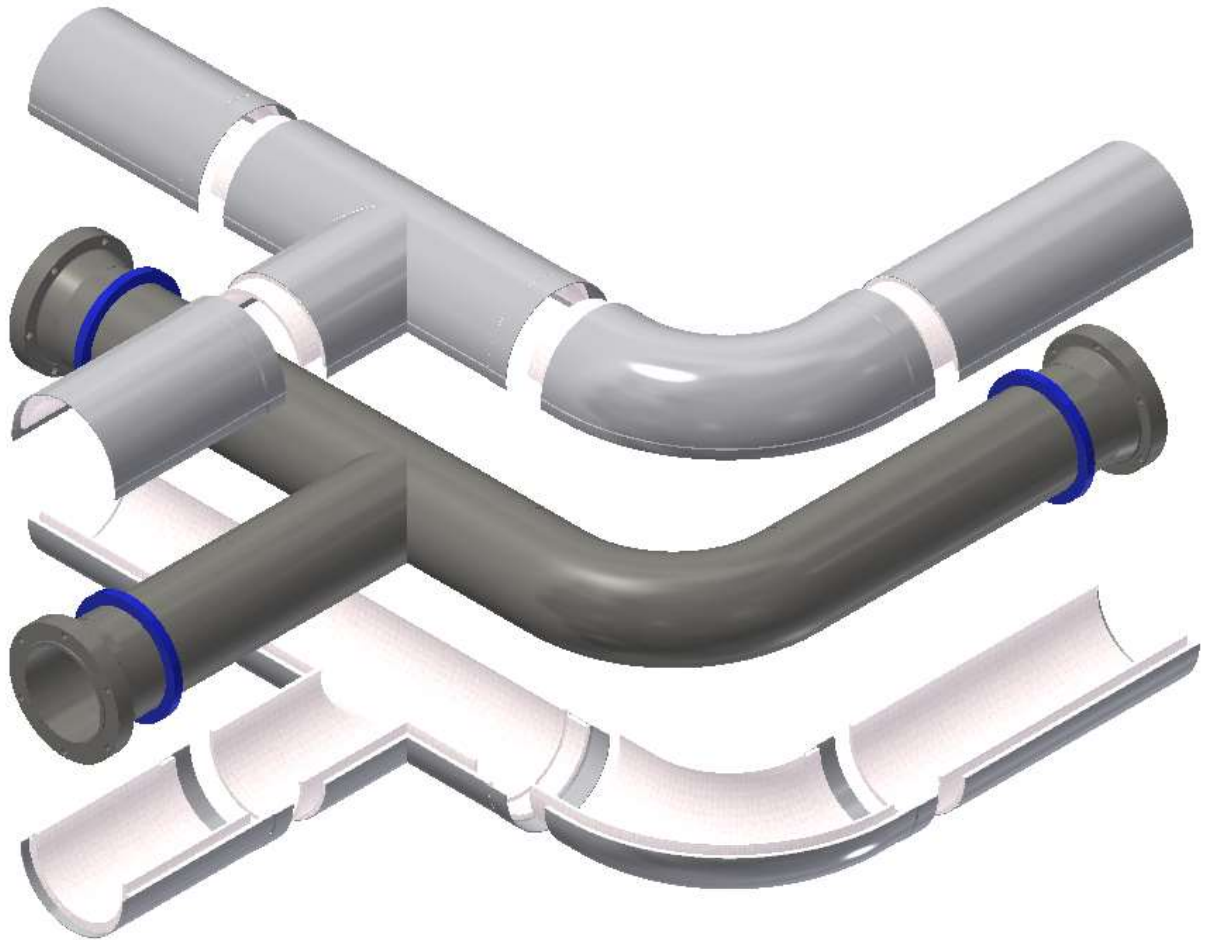
STEP 6

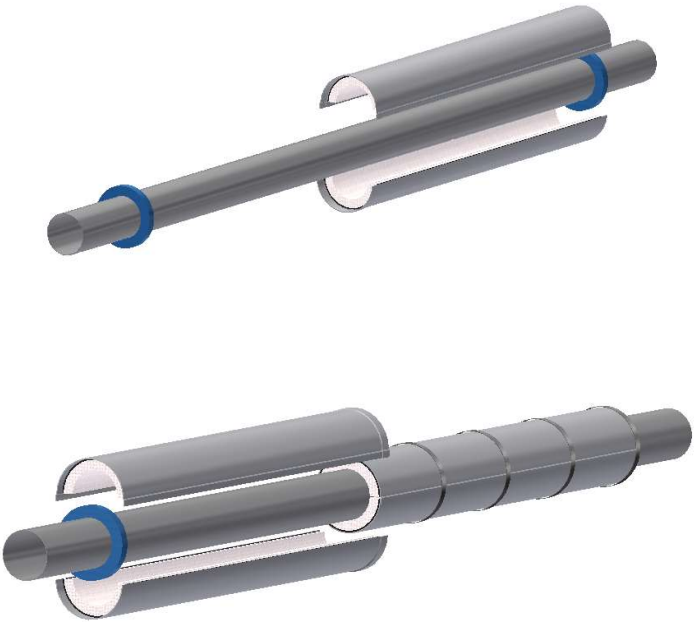



Vertical ending with GRP



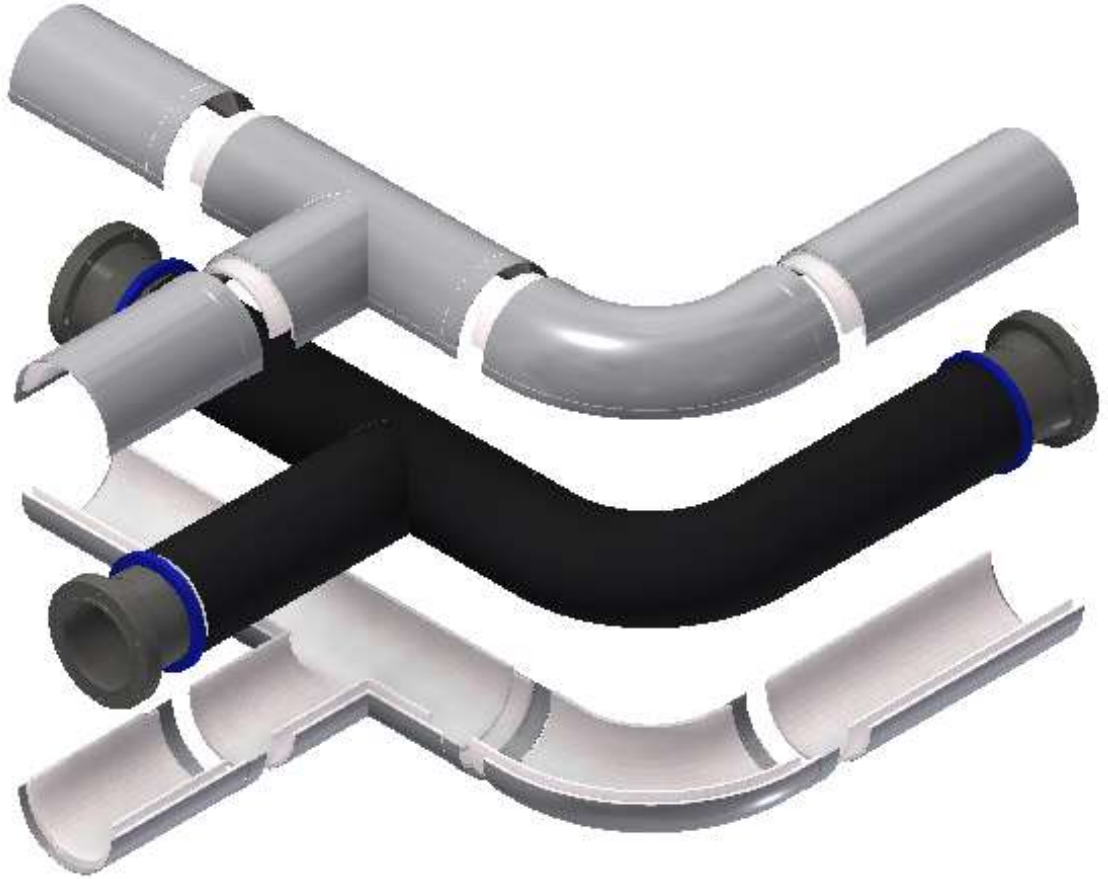
7 Installation Procedure for class 6 & 7






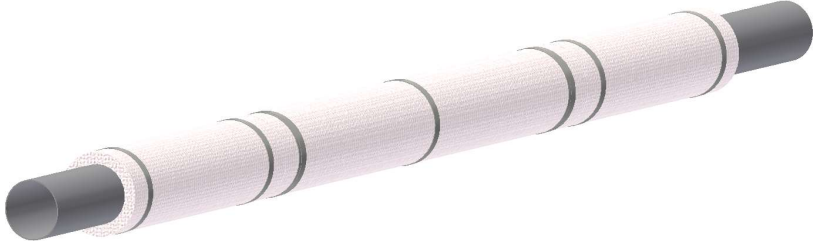

| Installation Procedure for class 6&7 | |
|---|--|
| <p>1. Install All in one according to specifications, and seal with approved sealant.</p> <p>Close with tensioning band while montaging</p> |  |
| <p>2. Close with steel tensioning band.</p> |  |

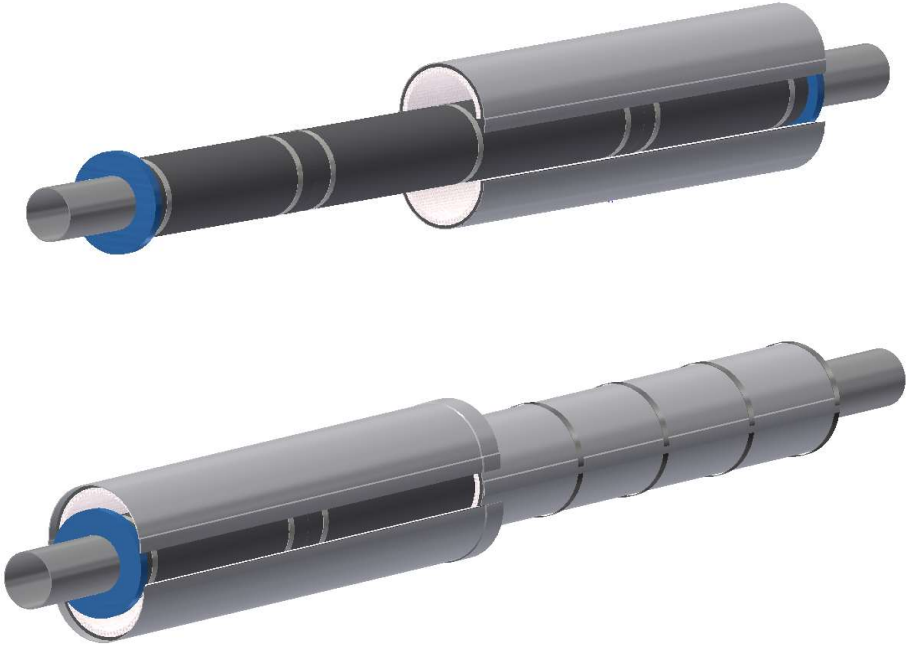

8 Installation Procedure for class 8

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| | |
|---|--|
| <p>Installation around pipe is taken from installation procedure for Oryza-sil-650</p> <p>TECH-MA21-005</p> | <h2>Installation Procedure for class 8</h2> |
| <p>1. Cut Oryza-Sil blanket to the length required for a complete wrap. Butt joints or overlap can be used, in accordance with project specifications. Butt joint must be placed downwards.</p> <p>If overlap is used, the overlap must be oriented with a downward-facing watershed.</p> |  |
| <p>2. Once wrapped around the pipe, the Oryza-Sil may be held in place using glasfibre reinforced tape.</p> |  |
| <p>3. Align the starting edge of the Oryza-Sil in the longitudinal direction of the pipe and wrap around the pipe.</p> |  |
| <p>4. Once wrapped around the pipe, the Oryza-Sil may be held in place using gflasfibre reinforced tape.</p> |  |

| | |
|---|--|
| <p>5. install the layer with staggered joints in both the circumferential and longitudinal direction.</p> |  |
| <p>6. Once wrapped around the pipe, the Oryza-Sil may be held in place using glasfibre reinforced tape or steel banding, dependent of project requirements.</p> |  |
| <p>7. Cut Soundstop blanket to the length required for a complete wrap. Butt joints or overlap can be used, in accordance with project specifications. Butt joint must be placed downwards.</p> |  |

| | |
|---|--|
| <p>8. Install All in one according to specifications, and seal with approved sealant.</p> |  |
| <p>9. Close with steel tensioning band And finished Product</p> |  |