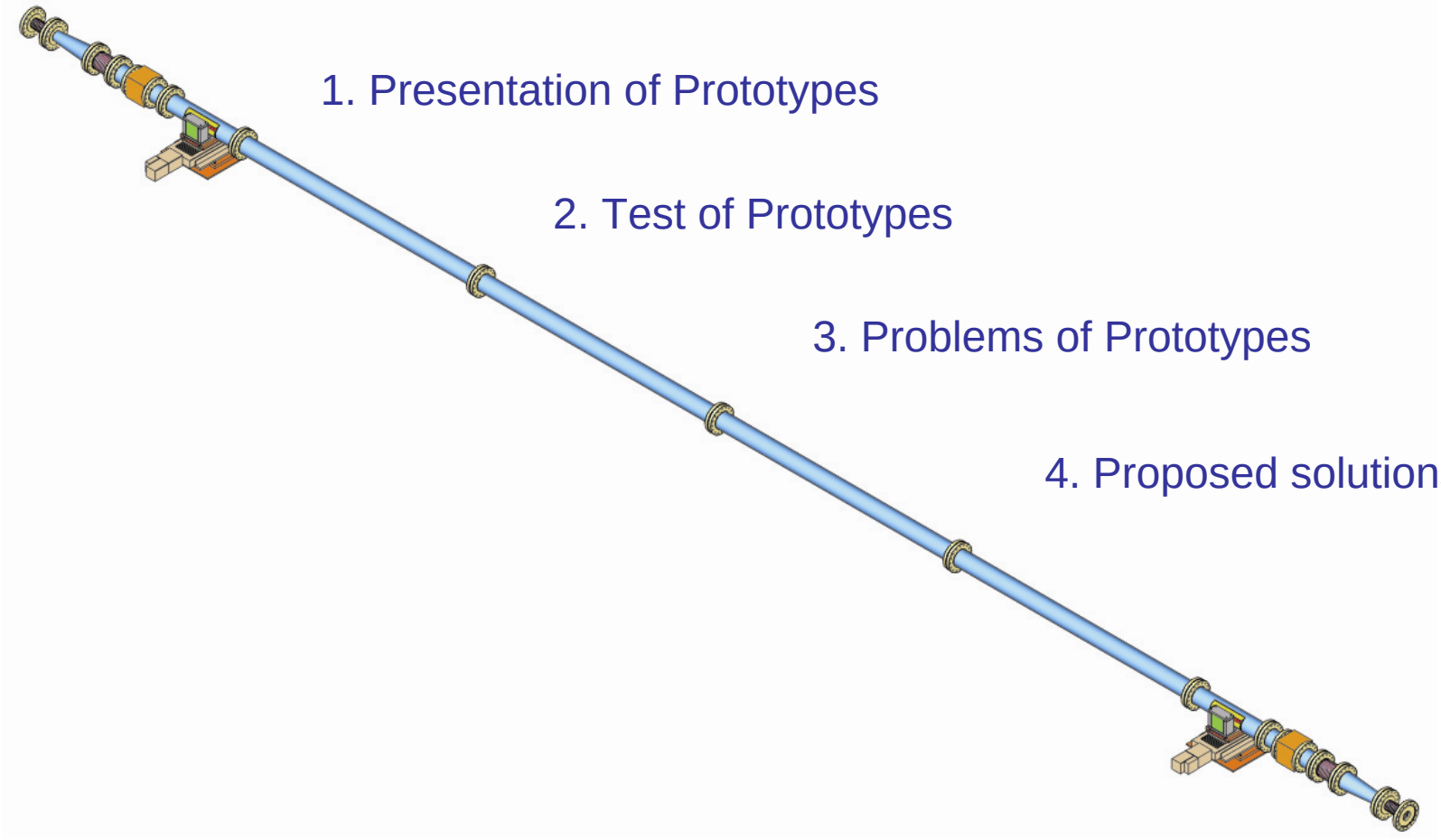
# *Hambourg Pipe : PROTOTYPES*



1. Presentation of Prototypes
2. Test of Prototypes
3. Problems of Prototypes
4. Proposed solutions

**Benoît Florins, Krzysztof Piotrzkowski, Guido Ryckewaert**

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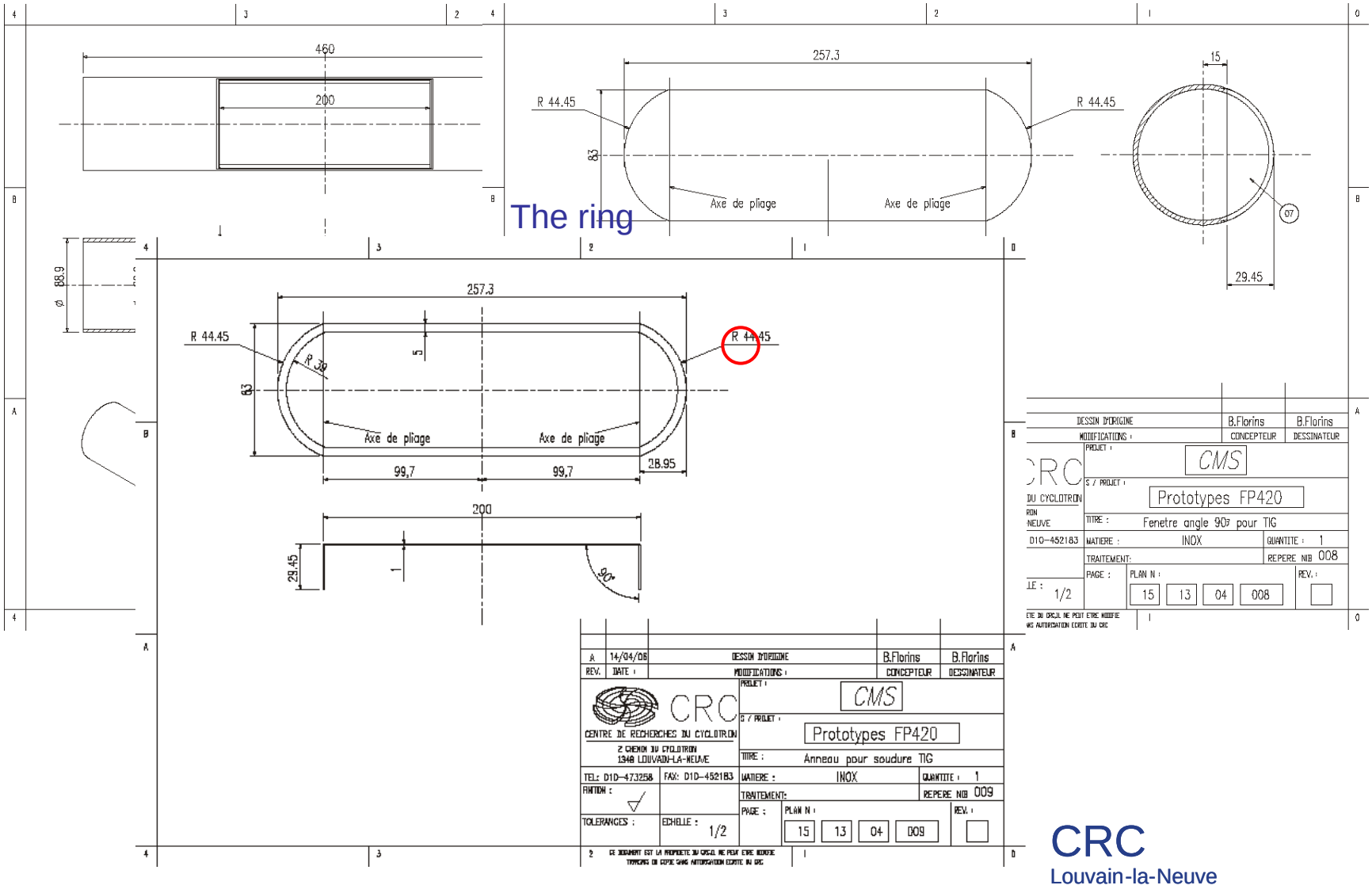
# Hambourg Pipe : PROTOTYPES

## 1. Presentation of prototypes

The ring

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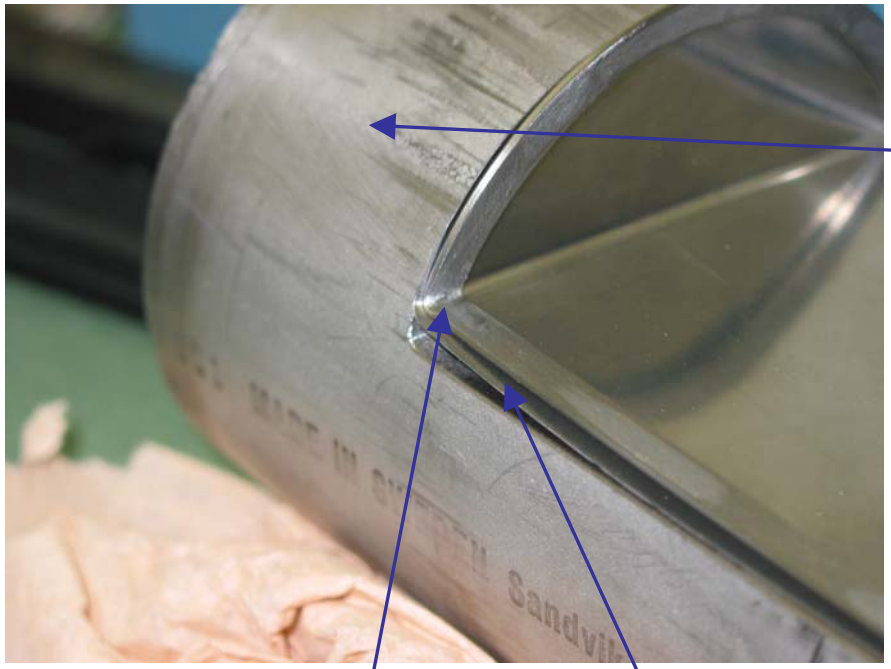
## 1. Presentation of prototypes

Before Welding

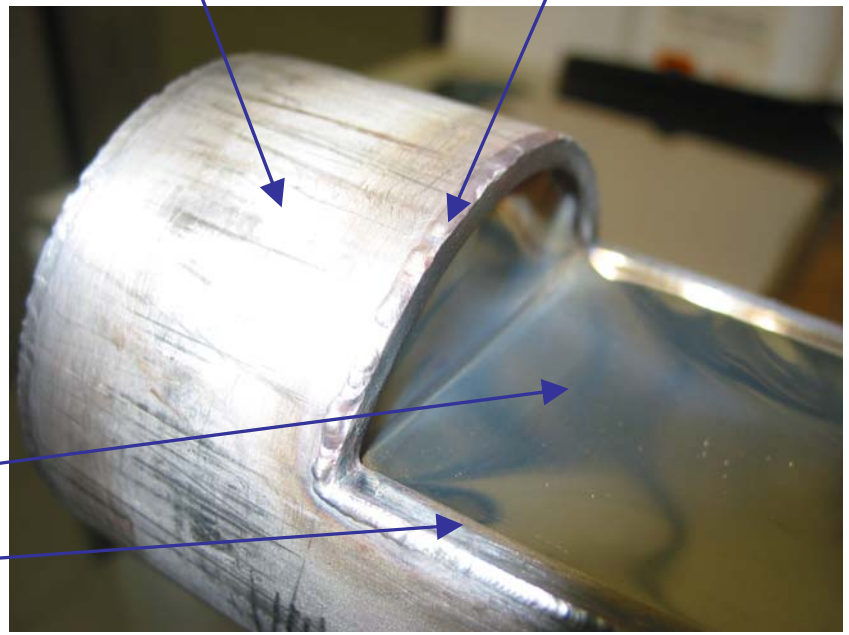


After Welding

Small deformations

Tube

Welding TIG



Window

Ring for welding

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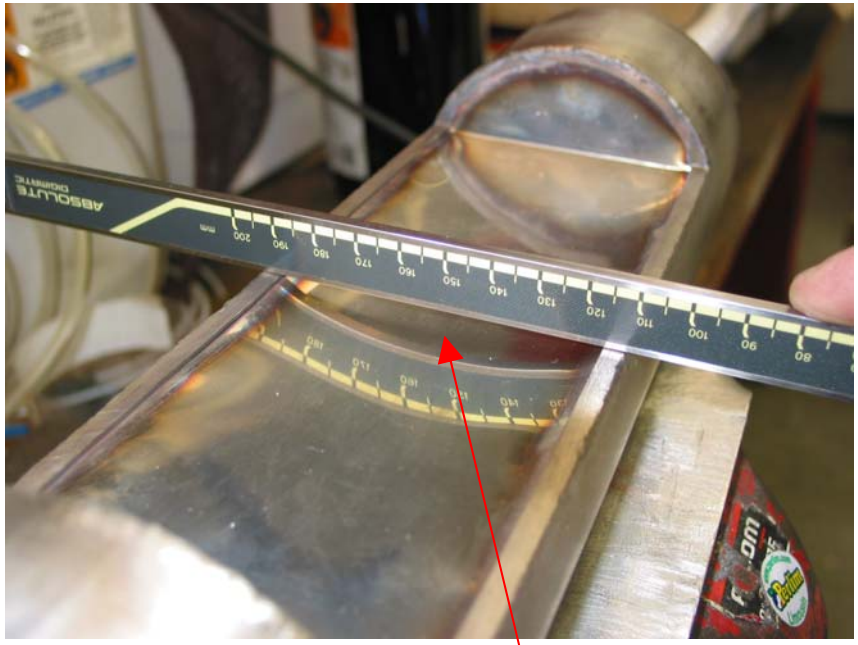
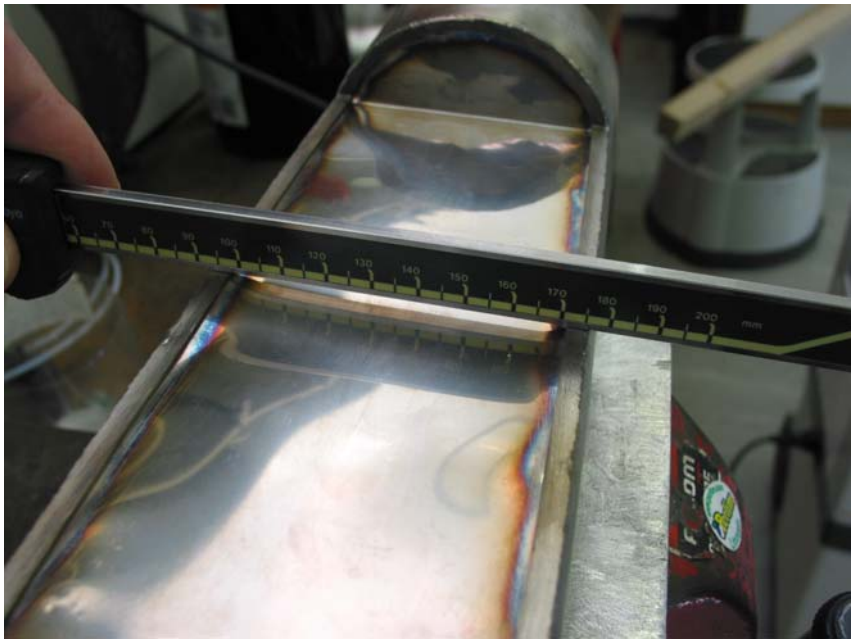
## 2. Test of prototypes : DEFORMATION



With vacuum:

Deformation of 5mm

Without vacuum:



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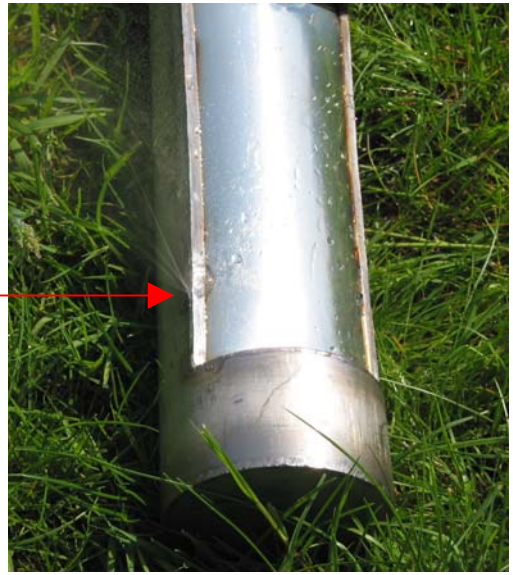
## 2. Test of prototypes : PRESSURE

Pressure of 3 bars water

Pressure of 15 bars water

Small Leak at 7 bars →



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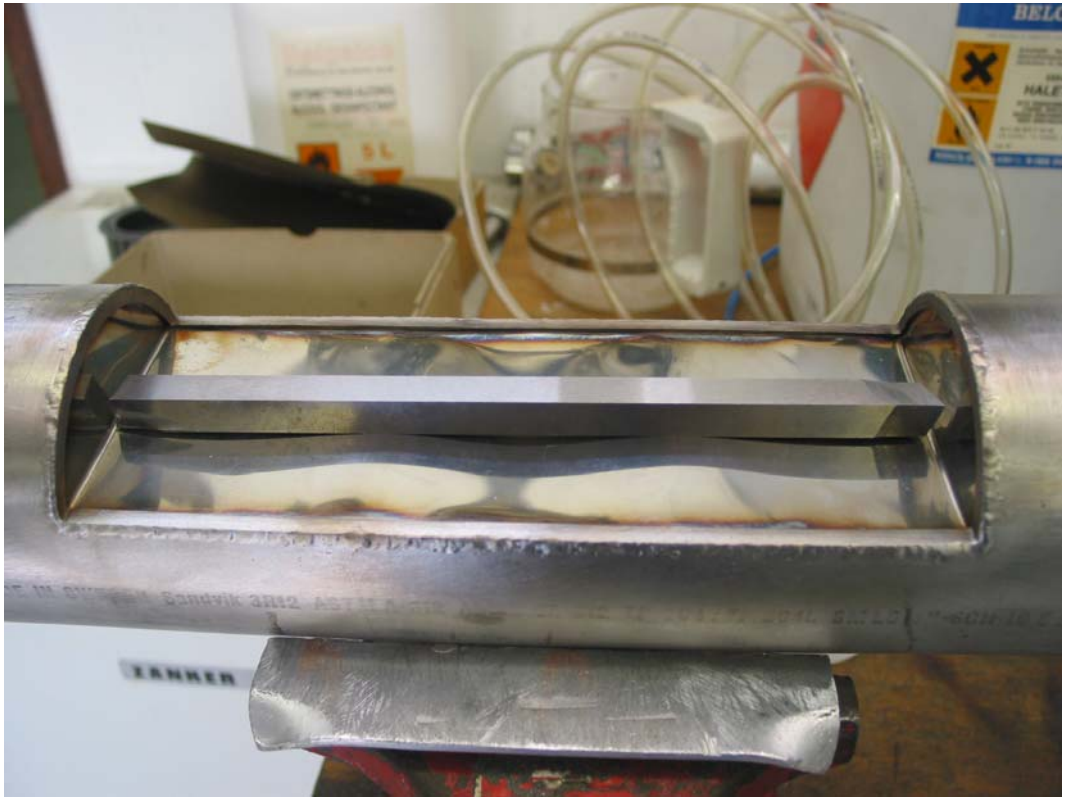
## 3. Problems of prototypes

1. Irregular surface
2. High deformation
3. Reliability of welding
4. Need a ring for welding



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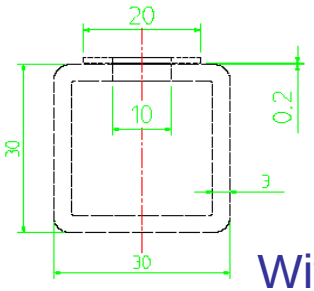
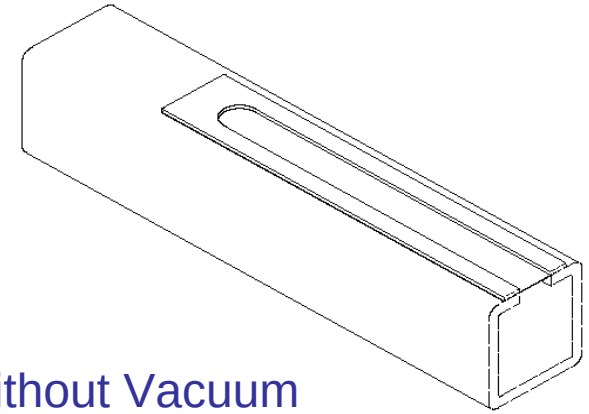
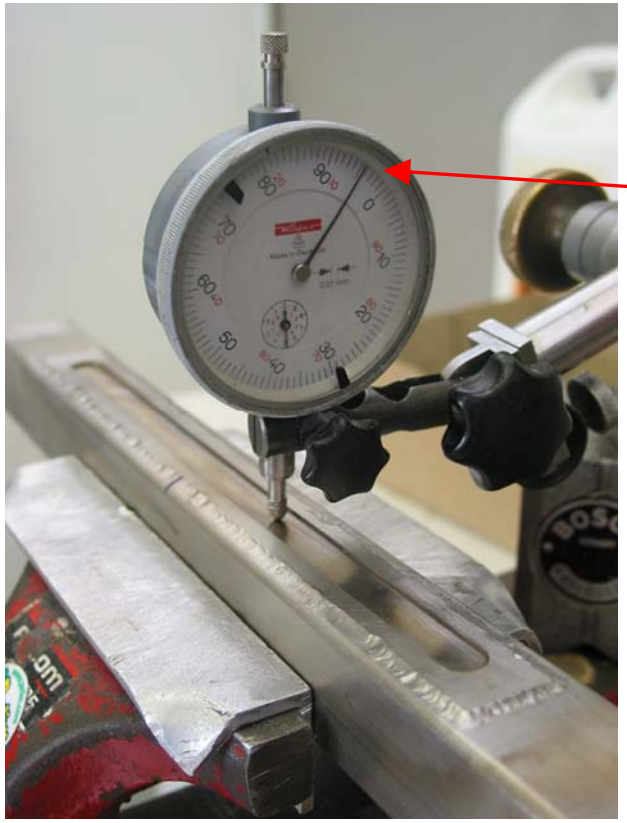
## 4. SOLUTIONS

Reduce the height of the window:

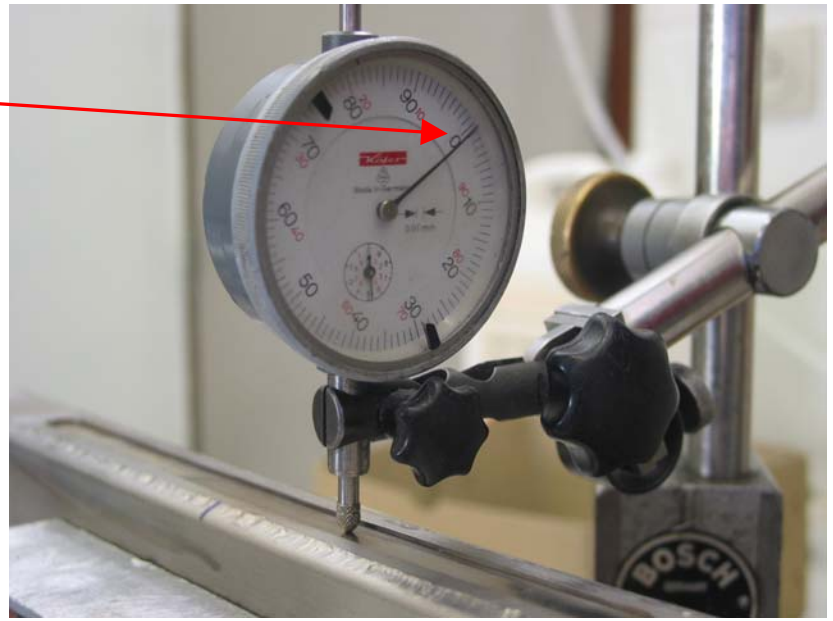


With Vacuum



Without Vacuum



Deformation of 0,05 mm

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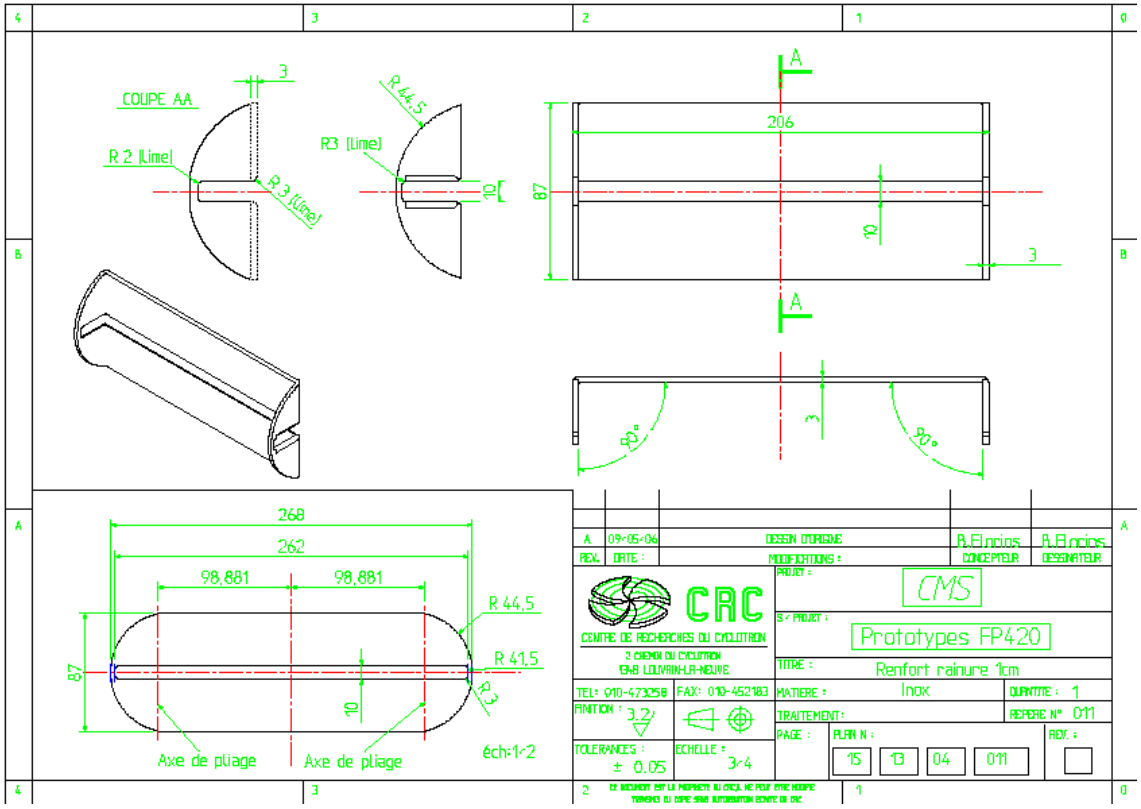
## 4. SOLUTIONS




Reduce the height

of the window

By using a reinforcement

Using LASER WELDING to avoid local deformations

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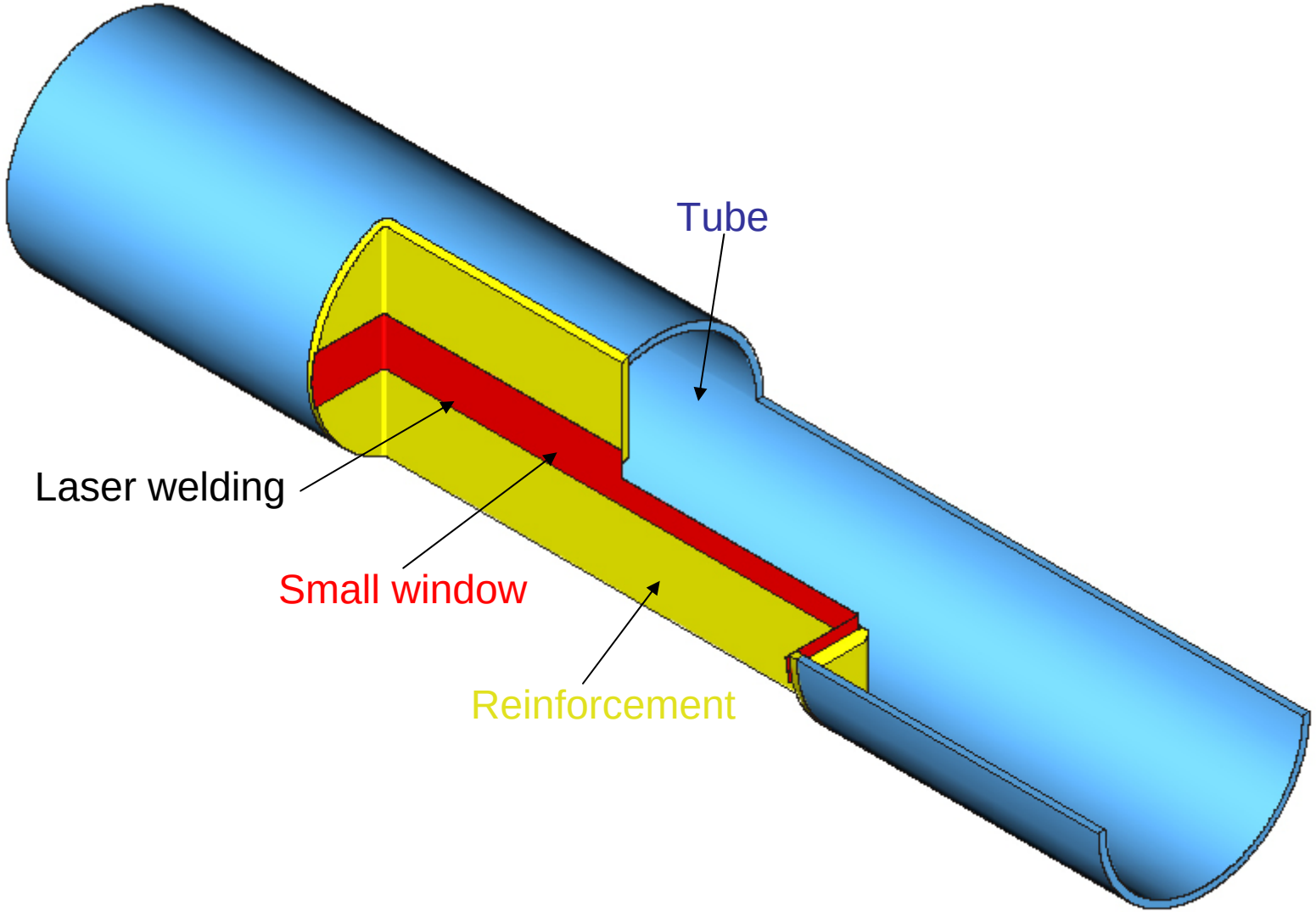


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# THANKS

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