

# Thermosiphon PX15 Pipes installation

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## Materials selection criteria

The nominal pressure class of the system is PN 40 (max 41 bar<sub>a</sub>). The minimal wall thickness for the straight pipes and for the elbows has been calculated by Mael Devoldere and Delio Duarte Ramos (EN/MME).

The material is stainless steel 304L.

DN50	Elbows	2.0 mm
	Straight pipes	2.0 mm
DN200	Elbows	3.7 mm
	Straight pipes	3.0 mm

Using of seamless stainless steel elements is not mandatory but **preferable** by reason of safety (the C<sub>3</sub>F<sub>8</sub> fluid circulating in the system can be activated).

# Materials purchasing

DN50	Pipes	CERN stock	φ60.3 mm x 2 mm	200 m	580 kg	34.00 €/m	9.1 kCHF	
		Van Leeumen Stainless (NL)	φ60.3 mm x 2.77 mm (2mm available)	200 m	720 kg	32.43 €/m	8.7 kCHF	cost of delivery ?
		Stahlkontor Hahn (DE)	φ60.3 mm x 2.77 mm (2mm available)	200 m	720 kg	29.00 €/m	7.8 kCHF	cost of delivery ?
	Elbows	CERN stock	φ60.3 mm x 2 mm	15		???		seamless ?
		Van Leeumen Stainless (NL)	φ60.3 mm x 2.77 mm	15		10.85 €/pc	0.2 kCHF	cost of delivery ?
DN200	Pipes	CERN stock	φ219.1 mm x 3.76 mm	200 m	3.8 t	280 €/m	75.6 kCHF	60% - 3 weeks
		Van Leeumen Stainless (NL)	φ219.1 mm x 3.76 mm	200 m	3.8 t	240.09 €/m	64.8 kCHF	cost of delivery ?
	Elbows	Ribat (FR)	φ219.1 mm x 3.76 mm	16		147.00 €/pc	3.2 kCHF	cost of delivery ?

We are in contact with C. Saint-Jal (CERN Store) to obtain prices and material.

## Pipes preparation

(Said Atieh, Didier Lombard – EN/MME)

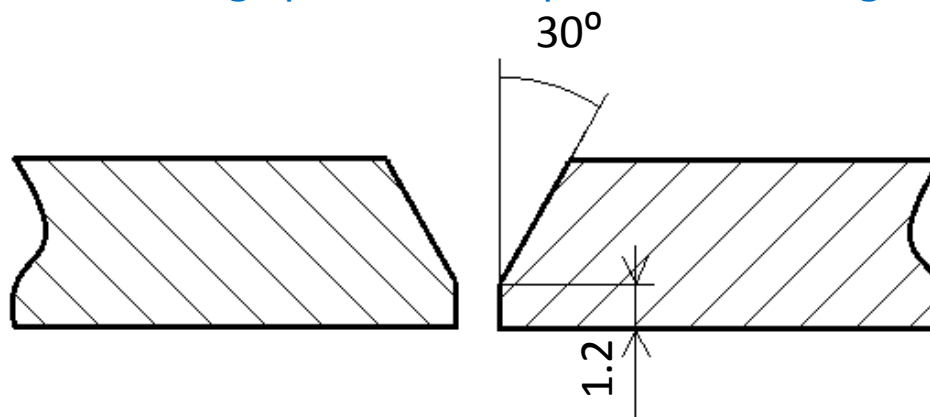
DN50: 40 straight tubes and 15 elbows

DN200: 41 straight tubes and 16 elbows

112 welded connections, 224 bearing faces to be prepared

The expected duration is 2-3 weeks

Welding qualification process running.



## Pipes cleaning

(Marina Malabaila – TE/VSC)

>115 parts to be cleaned at Preveessin site

The expected duration is 4 weeks

## Supports installation

(Jan Godlewski)

38 supports (in total for both lines)

The design and the stress analysis are not complete

The expected duration is 2 weeks

## Pipes installation

(Said Atieh)

>120 welded connections

The expected duration is 3 months - 4 persons ( $\approx 140$  kCHF)

100% X-Ray testing (Qualitec -  $\approx 30$  kCHF)

## Thermal insulation installation

(???)

A two-layer thermal insulation (40 mm) will be mounted

The inner layer is foam-glass or Armaflex

The outer layer is a thin metallic protection

This part of installation has to be done by a contractor

The expected duration is 1 month

# Installation planning

	Nov	Dec	Jan	Feb	Mar	Apr	Mai	Jun	Jul	Aug	Sep	Oct
<b>Material purchasing</b>	■	■	■									
<b>Pipes preparation</b>			■	■								
<b>Pipes cleaning</b>				■	■							
<b>Supports installation</b>				■	■							
<b>Pipes installation</b>					■	■	■					
<b>Thermal insulation installation</b>								■				