

2020:00234 - Restricted

# Test report

## Testing of pipe in tube system for August Kleven ApS – Exchangeability

### Author(s)

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## Testing of pipe in tube system for August Kleven ApS – Exchangeability

**VERSION**

1

**DATE**

2020-03-05

**AUTHOR(S)**

Bjørn-Roar Krog

**CLIENT(S)**

August Kleven ApS, Fynsvej 59, 5500 Middelfart, Danmark

**CLIENT'S REF.**

Steen Kjølby

**PROJECT NO.**

102004276-133

**NUMBER OF  
PAGES/APPENDICES**

5

**TEST OBJECT**

See Table 3.1

**TEST OBJECT RECEIVED**

2020-02-26

**TEST PROGRAM**

NT VVS 129

**TEST LOCATION**

Oslo

**DATE OF TEST**

2020-03-05

**ABSTRACT**

SINTEF Community has on behalf of August Kleven ApS carried out testing of exchangeability for a pipe in tube system.

The exchangeability of the pipe in tube system has been tested in accordance with NT VVS 129 "Pipe in tube systems", Clause 6.4.13 and 6.4.14. See Table 4.1 for test results.

Result: Passed

The test results relate only to the items tested

**PREPARED BY**

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2020:00234

**CLASSIFICATION**

Restricted

## 1. INTRODUCTION

SINTEF Community has on behalf of August Kleven ApS carried out testing of exchangeability for a pipe in tube system.

Bjørn-Roar Krog from SINTEF Community conducted the tests in accordance with NT VVS 129. Test location: Sanitary Laboratory, room no. U47.

## 2. TEST METHOD

The exchangeability of the pipe in tube system has been tested in accordance with NT VVS 129 "Pipe in tube systems", Clause 6.4.13 and 6.4.14. See Table 4.1 for test results.

## 3. TEST OBJECT

The tested pipe in tube system consists of wall box, pipe in tube, clamps and special exchangeability tool. See Table 3.1 and Fig. 3.1-3.4 for controlled components.

The controlled components, see Table 3.1, were delivered by post on 2020-02-26; they were selected by the customer and in good condition on arrival.

Table 3.1: Controlled components

Component	Quantity	Figure	Comment
August Kleven wall box	2	3.1	Push fit for pipe with external diameter of 15 mm
PEX pipe	10 m	3.2	Dimension 15 x 2,5 mm
Conduit pipe	10 m	3.2	Dimension 25/20 mm
Clamps	25	3.3	Clamps for 25 mm conduit pipe
Exchangeability tool	1	3.4	



*Fig. 3.1: August Kleven wall box*



*Fig. 3.2: PEX pipe (15 x 2,5 mm) and conduit pipe (25/20 mm)*



*Fig. 3.3: Clamps for conduit pipe (25 mm)*



*Fig. 3.4: Exchangeability tool*

## 4. TESTS, METHODS, REQUIREMENTS AND RESULTS

Table 4.1: Summary of results - NT VVS 129

Chapter	NT VVS 129	Characteristics	Number of tested items	Passed	
				Yes	No
4.1	6.4.13	Exchangeability of the inner pipe	1	x	
4.2	6.4.14	Water tightness of the protection tube <sup>1)</sup>	1	x	

### 4.1 Exchangeability of the inner pipe (NT VVS 129, Clause 6.4.13)

**Method:** The test shall be made at room temperature. A stud partition, like described in Fig. 4.1, is built. One wall box is fixed at a height of 500 mm to a pressed wallboard, and four 90° bends are made on the tube, inclusive the one in the wall box. Two bends of the tube section shall have a radius of 100 mm. Pipe clips are used every 600 mm. The total length of the inner pipe and outer protection tube shall be 10 meters. The exchangeability shall be tested according to the manufacturer's instructions. The withdrawal of the inner pipe starts from the box side. It is often necessary to start the withdrawal with one or two powerful pulls.

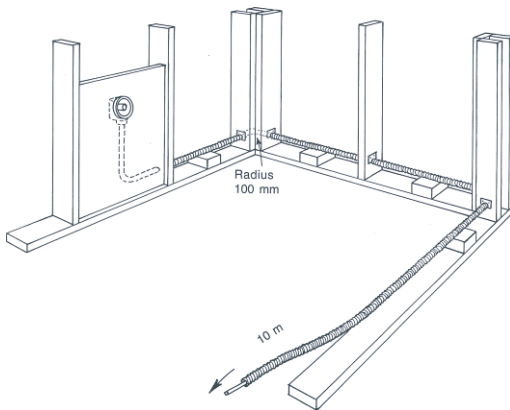


Fig 4.1

**Requirement:** The replacement of the inner pipe shall be possible without damaging the protection tube or arrangement.

**Result:** **Passed**

## 4.2 Water tightness of the protection tube (NT VVS 129, Clause 6.4.14)

Method: After the test, described in 6.4.13, and same arrangement, the end of the outer protection tube is plugged, and the system is filled up with cold water from the box side, and the pressure of 5 kPa shall be kept for 5 minutes.

Requirement: No leakages shall occur during a period of 5 minutes.

Result: **Passed**



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