TEST REPORT
TYPE TEST (TT)

REPORT NO.:
881570

DANISH TECHNOLOGICAL INSTITUTE

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Date: 26 September 2019
Init.: ARP/JOFR/MRI
Appendices: 4

Applicant:	August Klewen ApS Fynsvej 59 5500 Middelfart Denmark	Contact person: Steen Kjølby Email: sk@august-kleven.dk
Product:	Pipe in tube system, test of wall box Dimension of protection pipe OD/ID: 25/20 mm	
Manufacturing and sampling site:	**Manufacturing site:** -	**Sampling site:** August Klewen ApS Fynsvej 59 5500 Middelfart Denmark
Samples:	The samples were received by DTI in 2016 and in July 2019 respectively.	
Test period:	2016 and 27 – 28 July 2019	
Test site:	Danish Technological Institute, VA Testing and Inspection (DTI) Kongsvang Allé 29 DK-8000 Aarhus C, Denmark	
Test method:	Nordtest, NT VVS 129 approved 2002-09	
Results:	The mechanical requirements of the test methods mentioned above were met. The sealing material is not documented to be in accordance with EN 681 or DIN 4060 according to Nordtest, NT VVS 129.	
Remarks:	This report is a combination of two report numbers: 675223 (2016) and 881570 (2019).	
Terms:	Accredited testing was carried out in compliance with international requirements (EN/ISO/IEC 17025:2015) and in compliance with Danish Technological Institute's General Terms and Conditions regarding Commissioned Work Accepted by Danish Technological Institute. The test results apply to the tested products only. This test report may be reproduced in extract only if the Laboratory has approved the extract in writing.	
Signature:	Allan R. Pedersen Metrology engineer	Jørgen Frandsen Technical consultant

ilac-MRA DANAK
Test Reg. No. 300

Test methods and requirements in accordance with: Nordtest, NT VVS 129 approved 2002-09	Test site	Table No./ Appendix No.	Requirements met		Accredited		Sub-contractor Accreditation No.
			Yes	No	Yes	No	
Identification of the tested products and general information	DTI	Table 1					
6.4.0 Marking/photos	DTI	Table 2	X		X		
6.4.6 Water tightness, rubber seals	DTI	Table 3	X		X		
6.4.7 Water tightness of wall box and connection between box and protection pipe	DTI	Table 4	X		X		
6.4.8 Resistance to pull-out of the protection pipe	DTI	Table 5	X		X		
Certificate for rubber seal material		Appendix 1					
Mounting installations		Appendix 2					
Material certificate		Appendix 3					
Drawing		Appendix 4					

Table 1

Identification of the tested components and general information

Item id.	Photo	Model	Intended for pipe	Connection size	Pipe in tube
1		Smartbox Wall box	PE-RT 15 x 2.5 mm	½” Push-fitting	20/25 mm

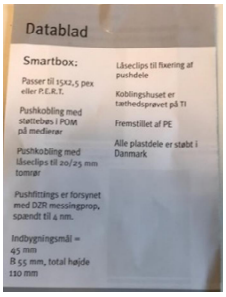
Table 2

6.4.0 – Marking/Photos









Protection pipe: No marking (MAINCOR pipe, information was provided by August Klewen)

Wall box: No marking

Elbow fitting is marked: PN 15 MM JG 62

Lock clips: No marking

	Protection pipe	Wall box
Material	PP	PE
Dimensions	25/20 mm	-
Colour	Black	See the photo in table 1

Table 3

6.4.6 – Water tightness, rubber seals

Sample	Static load	Test temperature °C	Flow in shower l/s	Number of cycles	Leakage between rubber seal and		Requirement met	
					wall box	membrane	Yes	No
Wall box mounted and sealed in wall board	200 N placed 100 mm from wall board	*	0.15	300	No	No	X	

Membrane LIP: Primer VS 20, membrane VS 30

*) One cycle of exposure by hand shower is:

1. Hot water 50 °C for 1 minute
2. Break for 1 minute
3. Cold water (<20 °C) for 1 minute
4. Break for 1 minute

Requirement:

No leakage shall occur between the rubber seal and the wall box and between the rubber seal and the liquid membrane.

Additional requirement:

The material for the rubber seal shall be in accordance with EN 681.1 or DIN 4060.

Remark:

The sealing material is not documented to be in accordance with EN 681 or DIN 4060 according to Nordtest, NT VVS. 129.

Test conditions

Uncertainty of test results: Temperature ±2 °C. Flow ±2 %.

Number of samples tested: Wall box, sample No. 1 (item id. 1)

Test equipment: 270-A-2500

Table 4

6.4.7 – Water tightness of wall box and connection between box and protection pipe

Length of connected protection pipe mm	Misalignment 250 mm from wall box mm	Test temperature °C	Test pressure kPa	Test duration min	Requirement	Requirement met	
						Yes	No
3000	80	23	30	5	No visible leakage	X	
3000	80	23	30	5	No visible leakage	X	
3000	80	23	30	5	No visible leakage	X	

Test conditions

Uncertainty of test results: Temperature ±2 °C. Geometry ±3 %.

Number of samples tested: Samples Nos. 2, 3, 4 (item id. 1)

Test equipment: 7157

Table 5

6.4.8 – Resistance to pull-out

Test temperature °C	Test duration min	Pulling force N	Requirement met Yes	No
23	5	100	X	
23	5	100	X	
23	5	100	X	

Requirement: The pipe shall not slip or loosen from the box during the testing time.

Test conditions

Uncertainty of test results: Temperature ±2 °C.

Number of samples tested: Samples Nos. 5, 6, 7 (item id. 1)

Test equipment: 101997, 270-A-2500-5

Elastron G100.A65.B

(Old code: 123.901.A65.GIF)

TECHNICAL DATASHEET

Product Description

A soft, black SEBS based thermoplastic elastomer (TPE) compound that offers good physical properties and chemical resistance.

General Properties

Color	Black
Certifications	RoHS
Processing Method	Injection
Available Standarts	ASTM

Physical Properties

Property	Unit	Standart	Value
Hardness	SHORE A	ASTM D 2240	65
Density	g/cm³	ASTM D 792	1,17
Tensile Strength at Break	MPa	ASTM D 412	5,5
Mod.of Elasticity %100	MPa		2,0
Mod.of Elasticity %300	MPa		3,4
Elongation at break	%		700
Compression Set	% @ 23℃ 22 h	ASTM D 395	19
	% @ 70℃ 22 h		48
	% @ 100℃ 22 h		75
Tear Resistance	N/mm	ASTM D 624	30

Ageing Tests

Ozone Resistance	Stressed	ASTM D 518	No Cracks

Bondable to

PP, EVA, PE

Processing

Injection Molding Paramaters

Molding Temperatures	Temperature (℃)
Rear	145 - 175
Center	155 - 185
Front	160 - 190
Nozzle	175 - 205
Mold	25-50
Predrying	Not Necessary

Additional information

ELASTRON Products are not compatible with PVC and Acetal.

Regrinding level up to %20 is recommended with minimum property loss.

Shrinkage

	Value (%)	Test Standard
Longitidunal Shrinkage	2,05	ASTM D955
Cross Shrinkage	1,33	ASTM D955

Notes

The properties shown are typical values and are not intented as product specifications.This statement is only valid for the product mentioned above.We can not guarantee for the final products due to addinitional processing at your plant which is not under our control.

ISO 9001:2000& ISO TS 16949 REGISTERED QUALITY SYSTEMS

Vægdåse til vådrum

Pexrør eller p.e.r.t. 15 x 2,5 med eller uden iltspærre.
Røret skal være glat, tolerance 15-15,25

Medierøret skal afgrates udvendig.
Medierøret må ikke have langsgående spor.

1. Push kobling
2. Gul lås t/tomrør
3. Rød låsering til Push/PE-RT rør
4. Studs

Rød låsering monteret i Push kobling. Pex eller PERT indstiksdybde 25 mm

Studs drejes 90 grader til slutposition (som illustreret på billedet). Synlig kontrollérbar indstikslængde på 8-10 mm.

Den gule låsering monteres enten fra højre eller fra venstre til låsning af tomrør. Låseringen er trækfast op til 10 kg iflg. Norm NKB 18

Fastgør tomrøret til væg med rørbøjle eller fikser tomrøret 10-15 cm i lig position.

Membranen anvendes til vådrum installation.

Membranen placeres på halsen af vægdåsen op mod væg.
Væggen smøres med f.eks. LIP vådrums tætning, og membranen sættes på og presses ind i tætningsmassen.
Derefter smøres membran og væg med tætningsmasse.

Datablad

Smartbox:

Passer til 15x2,5 pex eller P.E.R.T.

Pushkobling med støttebøs i POM på medierør

Pushkobling med låseclips til 20/25 mm tomrør

Pushfittings er forsynet med DZR messingprop, spændt til 4 nm.

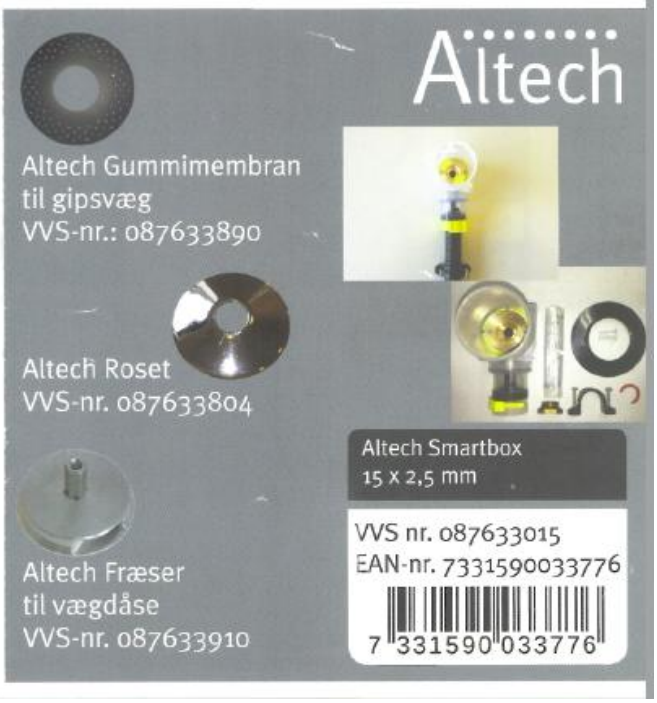
Indbygningsmål =
45 mm
B 55 mm, total højde 110 mm

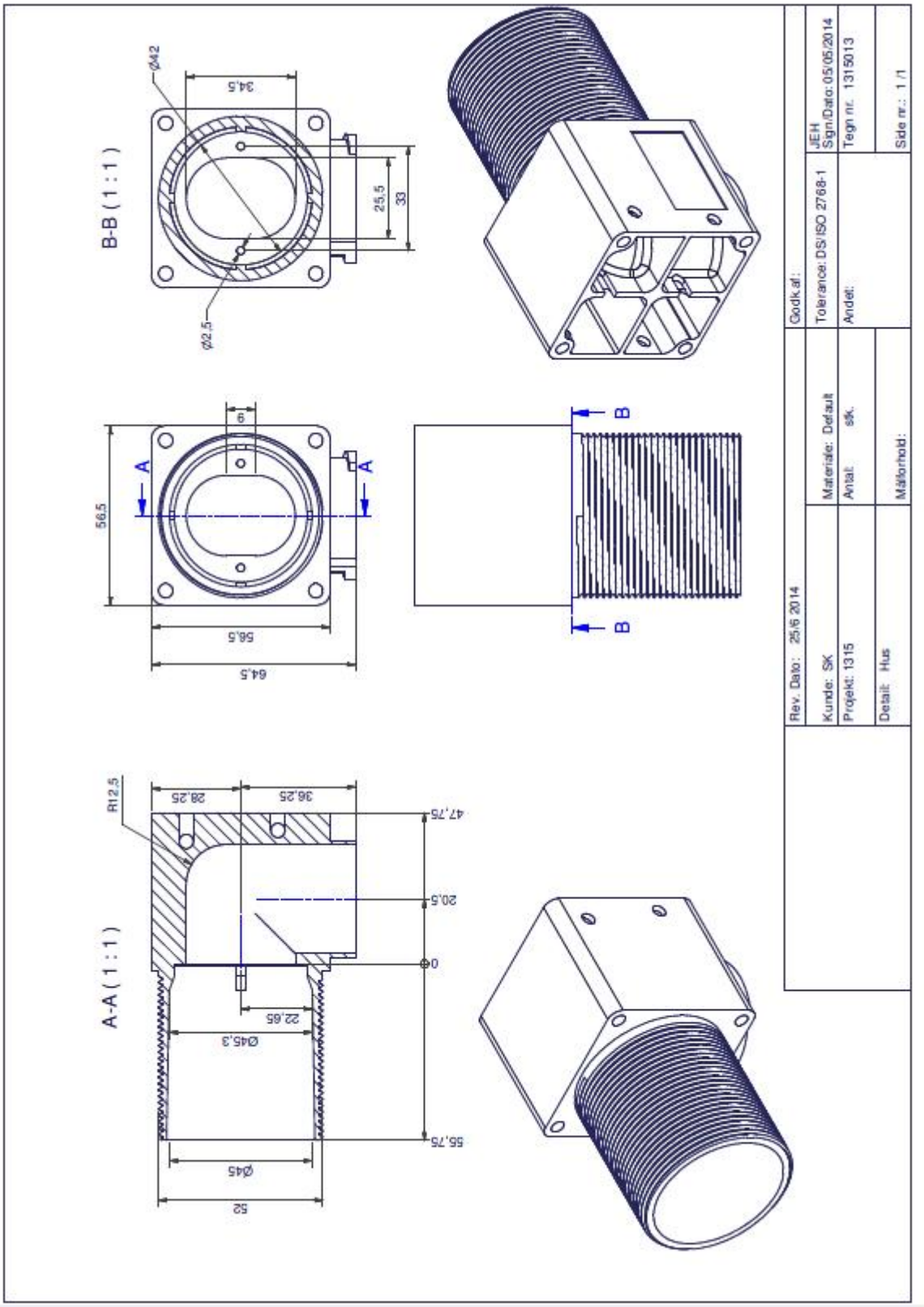
Låseclips til fixering af pushdele

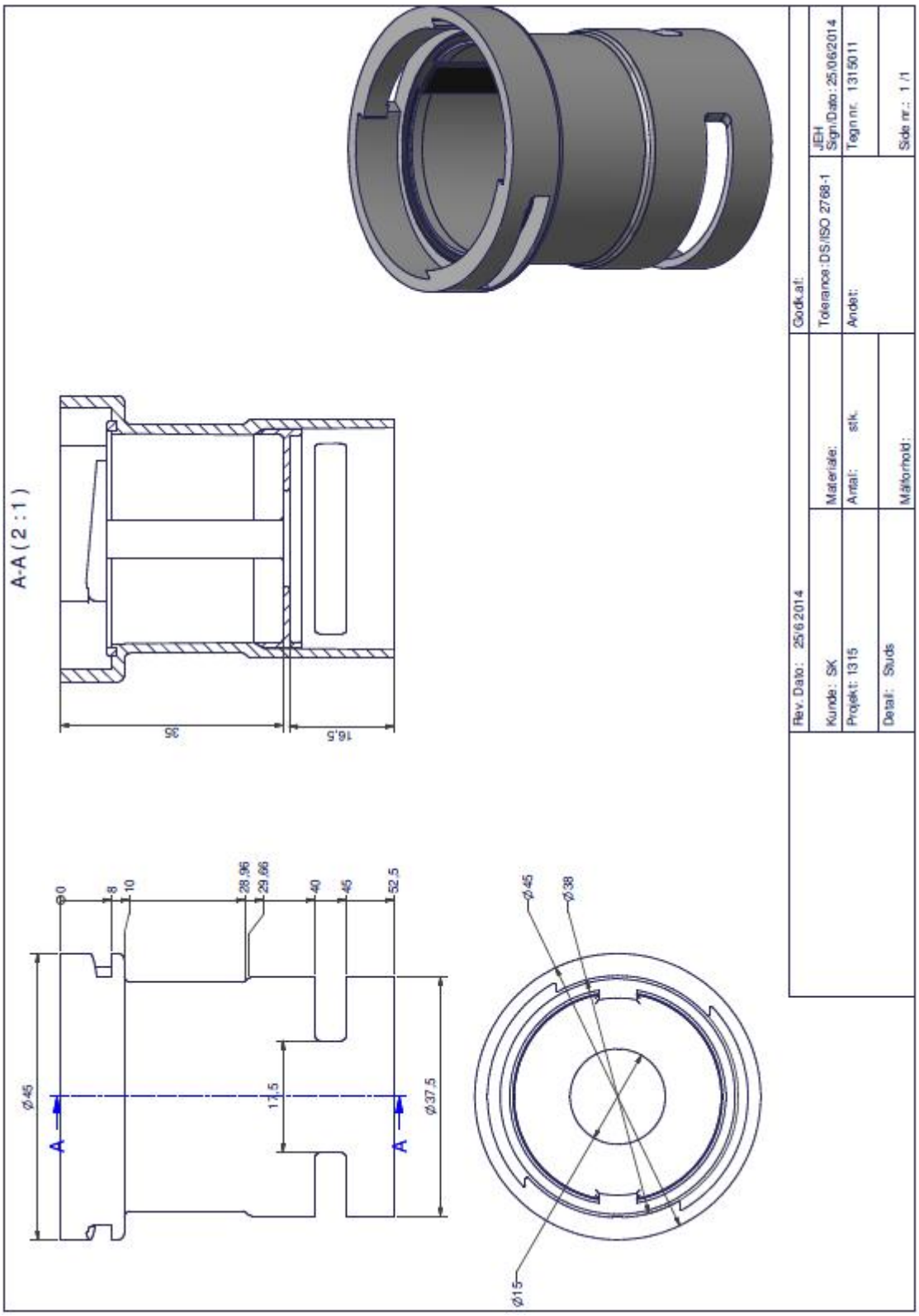
Koblingshuset er tæthedsprøvet på TI

Fremstillet af PE

Alle plastdele er støbt i Danmark




B-B (1 : 1)
Ø42
34,5
25,5
33
Ø2,5
A
A
9
56,5
58,5
64,5
B
B
A-A (1 : 1)
R12,5
28,25
36,25
47,75
20,5
0
22,65
Ø45,3
55,75
Ø45
52
Rev. Dato: 25/6 2014
Kunde: SK
Projekt: 1315
Detalj: Hus
Materiale: Default
Antal: stk.
Målforhold:
Godk.af:
Tolerance: DS/ISO 2768-1
Andet:
JEH
Sign/Dato: 05/05/2014
Tegn nr.: 1315013
Side nr.: 1/1


A-A (2 : 1)
35
16,5
Ø0
8
10
28,96
29,66
40
45
52,5
Ø45
A
17,5
Ø37,5
Ø45
Ø38
Ø15
Rev. Dato: 25.6.2014
Kunde: SK
Projekt: 1315
Detail: Studs
Materiale:
Antal: stk.
Målforhold:
Godkendt:
Tolerance: DS/ISO 2768-1
Ændret:
JEH
Sign./Dato: 25/06/2014
Tegn nr. 1315011
Side nr.: 1 /1