

TEST REPORT

AUDIT TEST (AT)

REPORT NO.:
183891-2



**DANISH
TECHNOLOGICAL
INSTITUTE**


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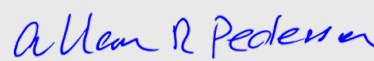
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Page: 1 of 7
Date: 2 August 2023
Init.: JOFR/TRK/ARP/MRI
Appendices: 1

Approval holder:	ACO Nordic AB Industrivägen 4 433 61 Sävedalen Sweden	Contact person: Jon Næss Email: jon.naess@aco-nordic.se
Control period:	2023	
Product:	ACO-PIPE drainage system, stainless steel pipes and fittings for drainage	
Approval:	† 0410-01 (expired 14-05-2023)	
Certification body:	RISE Certifiering	
Control agreement:	No. 217 of 18 August 2010	
Manufacturing and sampling site:	ACO stavebni prvky k.s. Havlickova 260 CZ-582 22 Pribyslav Czech Republic	
Samples:	The samples were selected by DTI according to DTI's procedure No. 9375 and were received by DTI on 3 March 2023.	
Test period:	25 April – 25 July 2023	
Test site:	Danish Technological Institute, VA Testing and Inspection (DTI) Kongsvang Allé 29, DK-8000 Aarhus C, Denmark	
Test methods:	EN 1124-1:2000, DS/EN 1124-2:2014 and DS/EN 1124-4:2013	
Result:	The requirements of the test methods mentioned above were met.	
Terms:	Accredited testing was carried out in compliance with international requirements (EN/ISO/IEC 17025:2017) 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:


Troels Kruse
Consultant


Allan R. Pedersen
Product Manager




Test Reg. No. 300

Test methods and requirements in accordance with: EN 1124-1:2000, DS/EN 1124-2:2014 and DS/EN 1124-4:2013	Test site	Table/ Appendix No.	Requirements met		Accredited		Sub- contractor Accreditation No.
			Yes	No	Yes	No	
Description and identification of the tested samples	DTI	Table 1					
1124-2, 5 Dimensions	DTI	Tables 2 - 3	X		X		
1124-4, 5 Vacuum	DTI	Table 4	X		X		
1124-1, 6 Appearance	DTI	Table 5	X		X		
1124-1, 7.2 Water tightness	DTI	Table 6	X		X		
1124-1, 7.3 Air tightness	DTI	Tables 7	X		X		
1124-1, 10.6 Materials	DTI	Appendix 1	X		X		
1124-1, 11 Marking	DTI	Table 8	X		X		



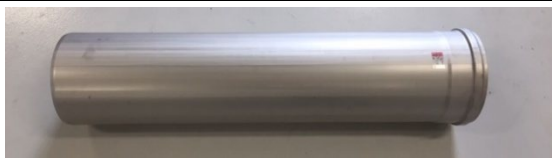
Table 1				
Description and identification of the tested samples				
Item id.	Number of samples	Photo	Type of product	Nominal diameter
1	5		ACO-PIPE drain system stainless steel	50 mm
2	5		ACO-PIPE drain system stainless steel	110 mm
3	5		ACO-PIPE drain system stainless steel	250 mm

Table 2									
1124-2, 5 – Dimensions									
Item id. 1, 50 mm (A1, A2, A3) Item id. 2, 110 mm (B1, B2, B3)									
Sample No.		A1	A2	A3	Requirement	B1	B2	B3	Requirement
Mean outside diameter	D1	50.2	50.2	50.2	min. 50.0 max. 50.2	110.3	110.3	110.3	min. 110.0 max. 110.3
	Wall-thickness pipe/fitting spigot	S_{min}	1.0	1.0	1.0	min. 0.8	1.05	1.05	1.05
S_{max}		1.05	1.05	1.05	max. 1.2	1.10	1.10	1.10	max. 1.2
Socket dimensions	D2	50.9	50.9	50.9	min. 50.5 max. 51.1	111.1	111.1	111.1	min. 110.3 max. 111.3
	t1	11	11	11	max. 18	12	12	12	max. 26
	t2	31	31	31	max. 20*)	45	45	45	max. 32*)
Length of pipe		997	997	997	min. 995 max. 1005	998	998	998	min. 995 max. 1005
Requirements met	Yes	X	X	X		X	X	X	
	No								
Test conditions Test method: EN 3126 Test temperature: 23 °C Test equipment: 102661, 270-A-1072, 137956, 270-A-1437, 7158, 137968									

*) Clause 5.2, table 4: The requirement of *t2* should be considered as a minimum requirement instead of a maximum requirement.

Table 3									
1124-2, 5 – Dimensions									
Item id. 3, 250 mm (A1, A2, A3)									
Sample No.		A1	A2	A3	Requirement	B1	B2	B3	Requirement
Mean outside diameter	DI	250.0	250.0	250.0	min. 250.0 max. 250.5				
	S_{min}	1.45	1.45	1.45	min. 1.2				
Wall-thickness pipe/fitting spigot	S_{max}	1.55	1.55	1.55	max. 2.3				
	D2	251.6	251.6	251.6	min. 251.1 max. 251.8				
Socket dimensions	t1	20	20	20	max. 45				
	t2	70	70	70	max. 55*)				
Length of pipe		1001	1001	1001	min. 995 max. 1005				
Requirements met	Yes	X	X	X					
	No								
Test conditions									
Test method: EN 3126									
Test temperature: 23 °C									
Test equipment: 102661, 270-A-1072, 270-A-1437, 137968, 138006									

*) Clause 5.2, table 4: The requirement of t2 should be considered as a minimum requirement instead of a maximum requirement.

Table 4								
EN 1124-4, 5 - Vacuum								
Item Id.	Sample No.	Vacuum bar	Vertical/horizontal change °		Vacuum after 15 min. bar	Permitted drop of vacuum bar	Requirements met	
							Yes	No
1	1 + 2	0.8	2	2	0.8	None	X	
2	1 + 2	0.6	2	2	0.6	None	X	
3	1 + 2	0.6	2	2	0.6	None		

Test conditions
Test method: EN 1277
Test temperature: 23 °C
Test equipment: 101846, 119166

Table 5	
1124-1, 6 - Appearance	
Assessment The products meet the requirements.	
Requirements The inner surface shall be smooth and free from cracks and defects affecting the flow. The inner surface of sockets shall be free from sharp irregularities. There shall be no visible annealing colour or material impurities. The outside surface shall be smooth and free from sharp irregularities which could damage the seals during insertion. There shall be no visible annealing colour or material impurities.	

Table 6							
1124-1, 7.2 - Water tightness							
Item Id.	Sample No.	Test temperature °C	Test pressure bar	Test duration min.	Angular deflection °	Leakage	Permitted leakage
1	1 + 2	20	0.5	15	-	None	None
2	1 + 2	20	0.5	15	-	None	None
3	1 + 2	20	0.5	15	-	None	None

Test conditions
Test method: EN 1053
Test equipment: 119166, 200837

Table 7

1124-1, 7.3 - Air tightness

Item Id.	Sample No.	Test pressure bar	Test temperature °C	Test duration min.	Angular deflection °	Direction of deflection °				Leakage	Permitted leakage
1	1 + 2	0.1	20	5	0					None	None
1	1 + 2	0.1	20	1	2	0				None	None
1	1 + 2	0.1	20	1	2		90			None	None
1	1 + 2	0.1	20	1	2			180		None	None
1	1 + 2	0.1	20	1	2				270	None	None
2	1 + 2	0.1	20	5	0					None	None
2	1 + 2	0.1	20	1	2	0				None	None
2	1 + 2	0.1	20	1	2		90			None	None
2	1 + 2	0.1	20	1	2			180		None	None
2	1 + 2	0.1	20	1	2				270	None	None
3	1 + 2	0.1	20	5	0					None	None
3	1 + 2	0.1	20	1	2	0				None	None
3	1 + 2	0.1	20	1	2		90			None	None
3	1 + 2	0.1	20	1	2			180		None	None
3	1 + 2	0.1	20	1	2				270	None	None

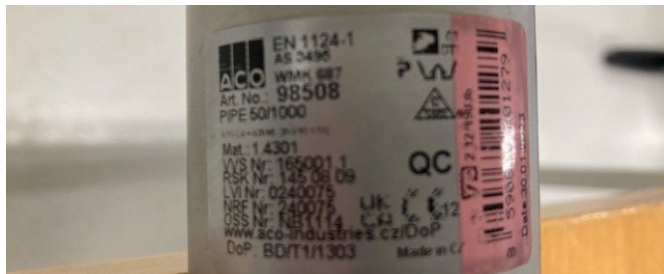
Test conditions

Test method: EN 1054

Test equipment: 200837, 119166

Table 8

1124-1, 11 - Marking



Sealing rings

- Seal DN 110 / EN 681-1 / WC / EPDM 60 / b 22.1
- Seal DN 50 / EN 681-1 / WC / EPDM 60 / b / 22.3
- Seal AP DN 250 / EN 681-1 / WC / EPDM 60 / b 21.1

Assessment

The marking meets the requirements.

Customer	ITALINOX S.R.O. ZDEBRADSKA 58/59 251 01 RICANY - JAZLOVICE CZ	Consignee	ITALINOX S.R.O. ZDEBRADSKA 58/59 251 01 RICANY - JAZLOVICE CZ	Delivery Nn	8361839715 19/09/2022 1007008416	Quality Control	O.M.D./Q.M. A. Venturini Plant Of Gazoldo	Pages	1/1
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Material Description	52438870 NXF002_1,00 x 345,5 4307/304L P ITALINOX	Norm/Grade	EN10028-7,EN10088-4, ASTM A240, ASME SA240, ASTM A480, ASMESA480	Order Nr	1191525605/20	Client Order	OIP - 1278/2022
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Item	Identification Nr	Heat	Quantity	Dimensional tolerances/ EN9445-2	Steel Processing/ Electric arc furnace VOD/AOD, continuous casting, heat treatment (annealing at 1050 °C, forced air cooling)	Mark Tester/ - Organization inspection: CO3
1	22X4006856	Y220128C12-5	2402 KG			
2	22X4006857	Y220128C12-5	2390 KG			

Identification Nr	Chemical Type	Mark	C (%)	Si (%)	Mn (%)	P (%)	S (%)	N (%)	Cr (%)	Ni (%)
22X4006856		22RF084148	.025	.578	1.636	.0206	.0079	.0522	18.402	8.201
22X4006857		22RF084148	.025	.578	1.636	.0206	.0079	.0522	18.402	8.201

Identification Nr	Test position	Test direction	Mark	Rm [N/mm²]	Rp 0.2 [N/mm²]	RP 1 [N/mm²]	A80 (%)	A50 (%)	HRB B	HRB T
22X4006856	B	T	22RF084148	639	289	331	51.9	55.1	90	89
22X4006857	B	T	22RF084148	639	289	331	51.9	55.1	90	89

Test Position/Posizione Prova	Test Direction/Direzione Prova	Remarks about tensile test:
T=coil head C=middle legth B=coil end	T=transverse L=longitudinal D=diagonal	- Confirmation of adequate degree of reliability for the uniformity over the strip length with certificate issued by TUV Rheinland Group dt. June 19, 2019

Test Position/Posizione Prova	Test Direction/Direzione Prova	Remarks about tensile test:
T=coil head C=middle legth B=coil end	T=transverse L=longitudinal D=diagonal	- Confirmation of adequate degree of reliability for the uniformity over the strip length with certificate issued by TUV Rheinland Group dt. June 19, 2019

Remarks:	<ul style="list-style-type: none"> - Surface finish 2B - We certify that products listed above comply with order requirements - Document validated acc: EN10204 par. 5 - Norms are intended in the valid edition at the time of the order - Durability: NPD
Regulated Substances: NPD	<ul style="list-style-type: none"> - Intended Uses: Building Constructions or Civil Engineering - DoP available at: http://www.marcegaglia.com/brochure/quality/dop.html - surface finish 2B

