

Hi-Con ApS
Hjallerup Erhvervspark 1
9320 HJALLERUP
Danmark

Test of panels according to EN 1143-1

(2 appendices)

Summary

A burglar resistance test of Hi-Con ApS panels has been performed according to SS-EN 1143-1:2019 strongroom.

The tested object fulfils the requirements according to SS-EN 1143-1:2019 strongroom as follows:

Panel DI0001 - 50 mm
Classification:
EN 1143-1:2019 – Grade I

Panel DI0005 - 75 mm
Classification:
EN 1143-1:2019 – Grade IV

1 Introduction

By commission of Hi-Con ApS a burglar resistance test of panels has been performed according to SS-EN 1143-1:2019 *Secure storage units – Requirements, classification and methods of test for resistance to burglary – Part 1: Safes, ATM safes, strongroom doors and strongrooms*.

The purpose of the tests was to determine and classify the test specimens into a resistance grade according to EN 1143-1:2019.

2 Test object

Manufacturer:	Hi-Con ApS.
Tested objects:	Panel DI0005, see photo 1 and drawing in appendix 2. Panel DI0001, see photo 2 and drawing in appendix 1.
Description of the sample:	Panels made of fibre reinforced concrete. Panel DI0005, 800 x 800 x 75 mm, weight 130 kg. Panel DI0001, 800 x 800 x 50 mm, weight 80 kg
Drawings:	See appendices 1 and 2.
Test object arrival at RISE:	2025-05-07 and 2025-06-30.
Selection of test object:	The test object has been selected by the client without RISE's assistance.

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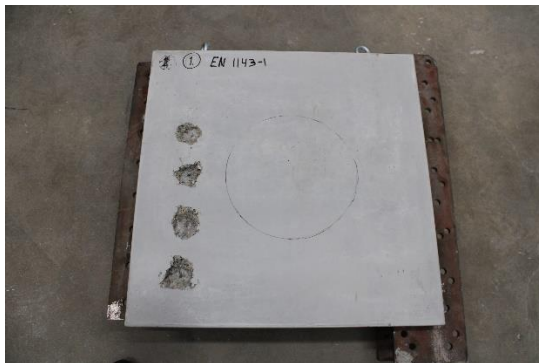


Photo 1. Test object panel DI0005

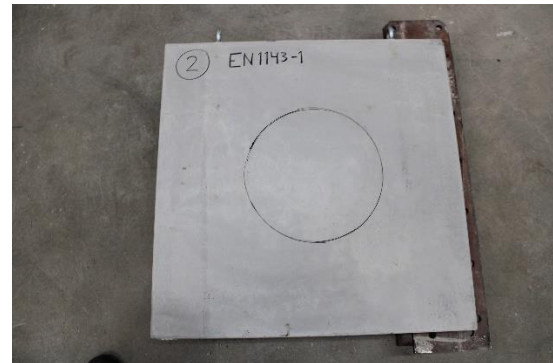


Photo 2. Test object panel DI0001-1

3 Test Method and performance

Test method:	SS-EN 1143-1:2019 <i>Secure storage units – Requirements, classification and methods of test for resistance to burglary – Part 1: Safes, ATM safes, strongroom doors and strongrooms.</i>
Test procedure:	Before the test RISE has examined the drawings of the test objects to identified any weak spots. Based on that, RISE decide method and which tools to be used for each test to achieve lowest possible grade.
Test dates:	2025-05-08, 2025-07-01, 2025-07-03 and 2025-11-14.
Test facility:	RISE – Safety – Mechanics research laboratory in Borås.
Team leader:	Christian Larsson.
Operators:	Christian Larsson, Dennis Sandell and Kevin Jagersjö.
Secretariat and time keeper:	Christian Larsson, Dennis Sandell and Kevin Jagersjö.

4 Test results tool attack test

The results reported relate only to the sample tested and are valid only in conditions in which the test was performed.

Table 1. Summary test results.

Test No.	Test object	Attacked part	Tool category	Main tools used	Total time (Sec)	RU	Grade	Remarks
1	DI0005	Through panel, total access.	C	Jack hammer	972	187	IV	Test terminated, the panel was not forced.
2	DI0001 -1	Through panel, total access.	C	Torch Jack hammer	1182	236	IV	The panel was forced, total access.
3	DI0001 -2	Through panel, total access.	B	Torch Sledge hammer	419	73	I	The panel was forced, total access.
4	DI0005	Through panel, total access.	B	Sledge hammer Jack hammer	1342	186	IV	Test terminated, the panel was not forced.

4.1 Test 1

Test protocol safe						
Project number:	P125611	Date:	2025-05-08	Test no:	1	
Test standard:	EN 1143-1:2019	Product:	Panel No 1. 75 mm			
Category:	Type test	Type of test:	Complete access	Criteria:	Circle 350 mm diameter	
Resistance value:	187,0	Grade IV	180 - 270			
Description of intended tool attack test:						
Through the panel complete access.						
Description of attack, material/ method:	Tool Category:	Tool coefficient:	Basic value:	Operation time, (s):	No of blows:	Photo:
Hilti Jack Hammer	A9:C	10	25	972		
		Max	Σ BV	Σ Ot (s)	0	
		10	25	972		

Test terminated, the panel was not forced – grade IV.



Photo 3. Test object DI0005 after test.

4.2 Test 2

Test protocol safe						
Project number:	P125611	Date:	2025-05-08	Test no:	2	
Test standard:	EN 1143-1:2019	Product:	Panel No 2. 50 mm			
Category:	Type test	Type of test:	Complete access	Criteria:	Circle 350 mm diameter	
Resistance value:	236,0	Grade IV	180 - 270			
Description of intended tool attack test:						
Through the panel complete access.						
Description of attack, material/ method:	Tool Category:	Tool coefficient:	Basic value:	Operation time, (s):	No of blows:	Photo:
Hilti jack Hammer	A9:C	10	25	1012		
Torch	A11:B	7,5	14	170		
		Max	Σ BV	Σ Ot (s)		
		10	39	1182	0	

The panel was forced – grade IV.



Photo 4. Test object DI0001-1 after test

4.3 Test 3

Test protocol safe						
Project number:	P125611	Date:	2025-07-01 and 2025-07-03		Test no:	3
Test standard:	EN 1143-1:2019	Product:	Panel No 3. 50 mm			
Category:	Type test	Type of test:	Complete access	Criteria:	Circle 350 mm diameter	
Resistance value:	73,4	Grade I	50 - 80			
Description of intended tool attack test:						
Through the panel complete access.						
Description of attack, material/ method:	Tool Category:	Tool coefficient:	Basic value:	Operation time, (s):	No of blows:	Photo:
Sledge hammer	A5:B	7,5	7	218	109	
Torch	A11:B	7,5	14	201		

The panel was forced – grade I.

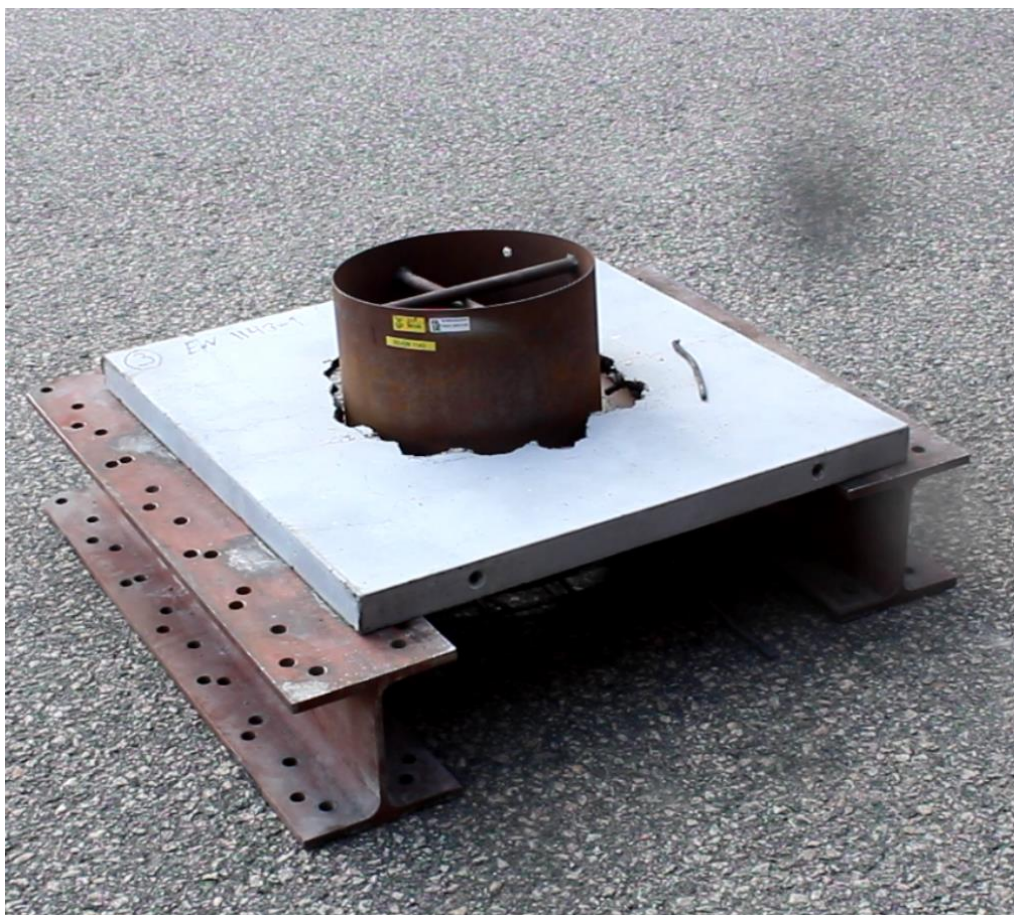


Photo 5. Test object DI0001-2 after test.

4.4 Test 4

Test protocol safe						
Project number:	P125611	Date:	2025-11-14	Test no:	4	
Test standard:	EN 1143-1:2019	Product:	Panel No. 1 75 mm			
Category:	Type test	Type of test:	Complete access	Criteria:	Circle 350 mm diameter	
Resistance value:	185,8	Grade IV	180 - 270			
Description of intended tool attack test:						
Through the panel complete access.						
Description of attack, material/ method:	Tool Category:	Tool coefficient:	Basic value:	Operation time, (s):	No of blows:	Photo:
Sledge hammer	A5:B	7,5	7	500	250	
Hilti Jack Hammer	A9:B	7,5	11	842		
		Max	Σ BV	Σ Ot (s)	250	
		7,5	18	1342		

Test terminated, the panel was not forced – grade IV.



Photo 6. Test object DI0005 after test.

4.5 Classification

Based on test results and assessment of the construction of the tested panels and also the classification criteria in test method EN 1143-1:2019 for strong room, RISE consider the resistance grade classification of the tested panels are as follow:

Panel DI0001 - 50 mm

Classification:

EN 1143-1:2019 – Grade I

Panel DI0005 - 75 mm

Classification:

EN 1143-1:2019 – Grade IV

5 Measuring uncertainty

The total calculated measurement uncertainty is for the dimensions, $0.1 \text{ mm} \pm 0.05 \text{ mm}$, $< 500 \text{ mm} \pm 1 \text{ mm}$ and $500\text{-}3000 \text{ mm} \pm 2 \text{ mm}$. For weights the measurement uncertainty is less than 1 %. Reported uncertainty corresponds to an approximate 95 % confidence interval around the measured value. The interval has been calculated in accordance with EA-4/16 (EA guidelines on the expression of uncertainty in quantitative testing), which is normally accomplished by quadratic addition of the actual standard uncertainties and multiplication of the resulting combined standard uncertainty by the coverage factor $k=2$.

RISE Research Institutes of Sweden AB

Chemistry and Applied Mechanics - Transport and Product Safety

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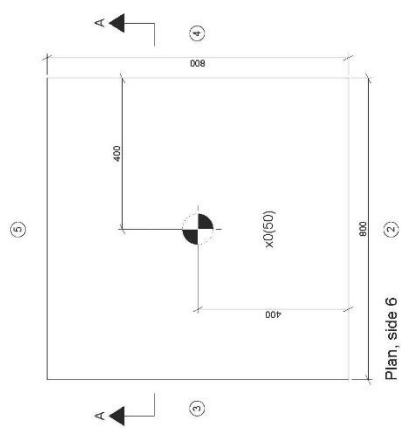
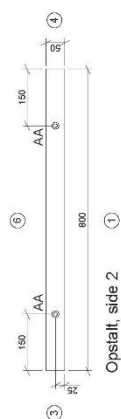
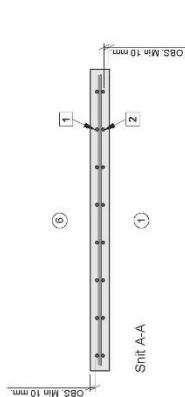
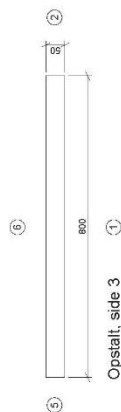
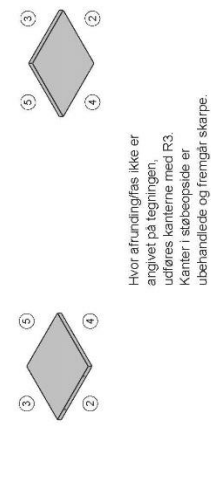
Christian Larsson

Anna Ehn

Appendices

1. Drawing of test object DI0001 – 50 mm – grade I.
2. Drawing of test object DI0005 – 75 mm – grade IV.

Appendix 1



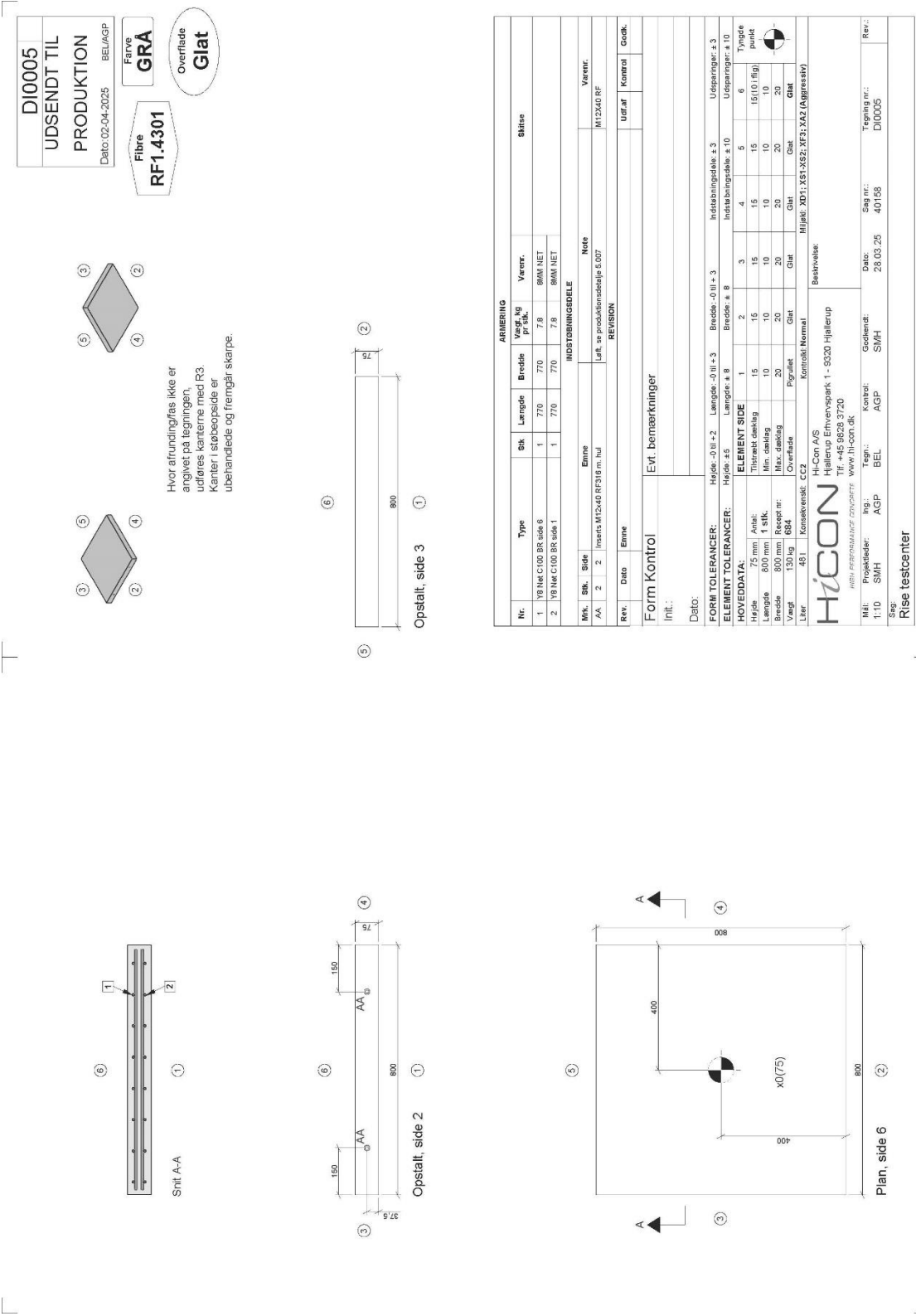
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Nr.	Type	Stk	Længde	Bredde	Vægt, kg pr. stk.	Væsen.	Bæltse		
1	Y8 N4 C100 BR side 6	1	770	770	7,8	8MM NET			
2	Y8 N4 C100 BR side 1	1	770	770	7,8	8MM NET			

INDSTØBNINGDELE									
Mfr.	Stk.	Side	Emne	Note					
AA	2	2	Inserts M12x40 RF316 m. hul	Løft, se produktionsdetalje 6.007					
				REVISION					

Form Kontrol									
Rev.	Dato	Emne	Evt. bemærkninger						
Int:									
Dato:									

FORM TOLERANCES:									
ELEMENT TOLERANCES:		Højde -0,01 ± 2		Længde -0,01 ± 3		Bredde -0,01 ± 3		Indstøbningsdele ± 3	
HOVEDDATA:		Højde ± 8		Længde ± 8		Bredde ± 8		Indstøbningsdele ± 10	
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Appendix 2



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Main document

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