DANAK
TEST Reg.No. 2

DANISH TECHNOLOGICAL INSTITUTE

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Order no.	363898
Doc. no.	1309590
Project no.	1316346-01
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Initials	MJLD/vem

CE 1235
EU Notified Body

Test report

Test specimen: Folding door, to this test equipped with 3 door leafs, further details can be found on page 2.

Sampling: The test specimen was forwarded by the client and received at the Danish Technological Institute on 2010.06.07. The test specimen was marked "363898" by the laboratory.

Method:

EN 14351-1 (2006):	Windows and doors – Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire/or smoke leakage characteristics
EN 1026 (2000):	Windows and doors - Air permeability - Test method
EN 1027 (2000):	Windows and doors - Watertightness - Test method

Note: Deviations in the test method did occur during testing. See page 6.

Period: The testing was carried out 2010.06.07 to 2010.06.09.

Result: Classification of the test specimen according to EN 14351-1 4.5 and 4.14 and the standards mentioned below:

Air permeability: Class 4 at ±600 Pa
according to EN 12207 – Windows and doors – Air permeability - Classification

Watertightness: Class E1200
according to EN 12208 – Windows and doors – Watertightness – Classification

The results of the test appear from page 3-6.

Terms: The test has been performed according to the enclosed conditions, which are according to the guidelines laid down by DANAK (The Danish Accreditation Scheme). The testing is only valid for the tested specimen. The test report may only be extracted if the laboratory has approved the extract.

2010.06.10, Danish Technological Institute, Building Technology, Aarhus

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Description of test specimen

The test specimen consists of a folding door with 3 door leafs, made of painted mahogany, see drawings in appendix 1.

The test conditions and the dimensions of the test specimen are measured by the laboratory and appear from the table below.

Width [mm]	Height [mm]	Area [m²]	Length of joint [m]	Temperature [°C]	Atmospheric pressure [hPa]
1792	1246	2.33	7.72	22.4	995

The client has given the following information about the construction of the test specimen:

Product name	Façade folding door
Gaskets	Q-lon
IGU	3 layered glazing with argon
Hardware	Stainless steel

Door during testing

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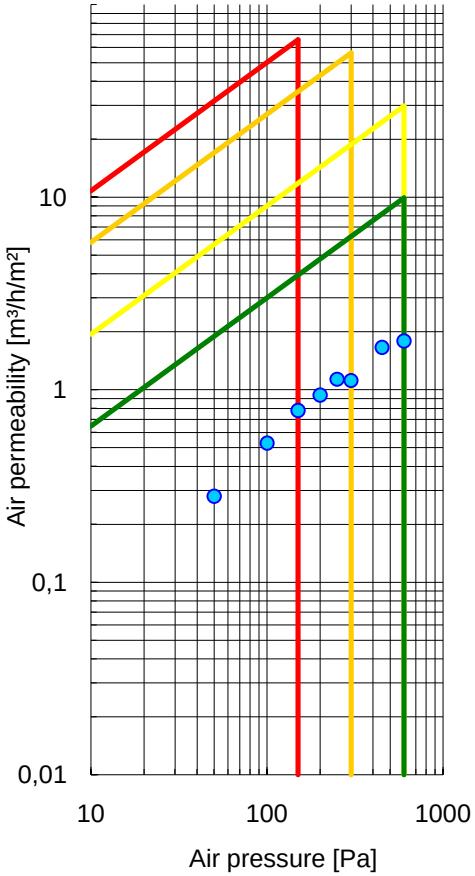
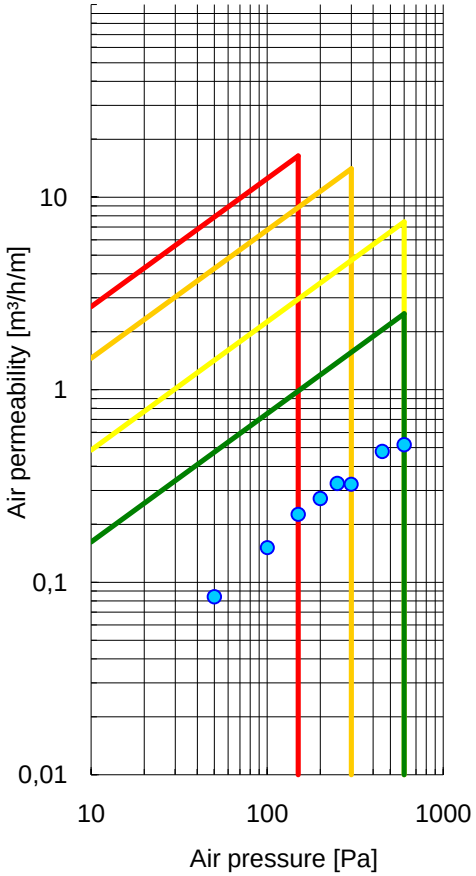
Test results – Air permeability – Positive air pressure

Air pressure [Pa]	Air flow Total [m³/h]	Air flow Area [m³/h/m²]	Air flow Length of joint [m³/h/m]	Class Area [-]	Class Length of joint [-]
50	0.61	0.28	0.08	4	4
100	1.17	0.53	0.15	4	4
150	1.72	0.78	0.23	4	4
200	2.08	0.94	0.27	4	4
250	2.50	1.13	0.33	4	4
300	2.47	1.12	0.32	4	4
450	3.67	1.66	0.48	4	4
600	3.96	1.79	0.52	4	4



Air permeability related to area



Air permeability related to length of joint

The graphs show the classification in relation to the area and the length of joint. Classes 1-4 are indicated by red, orange, yellow and green fields respectively

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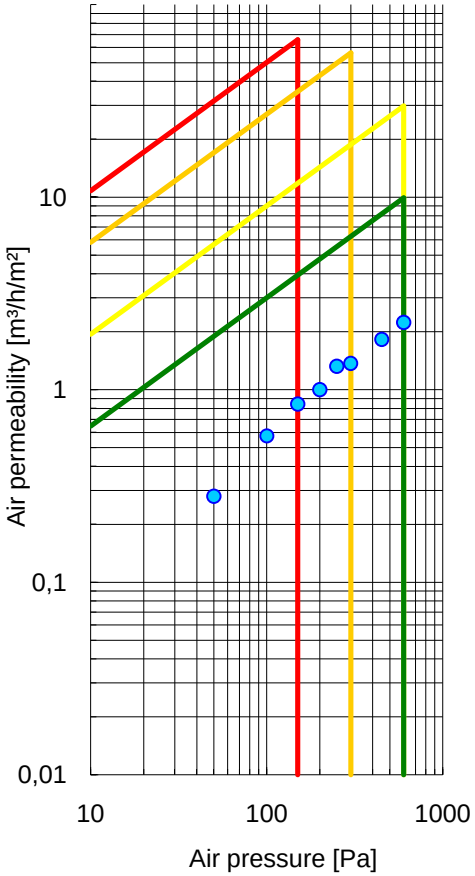
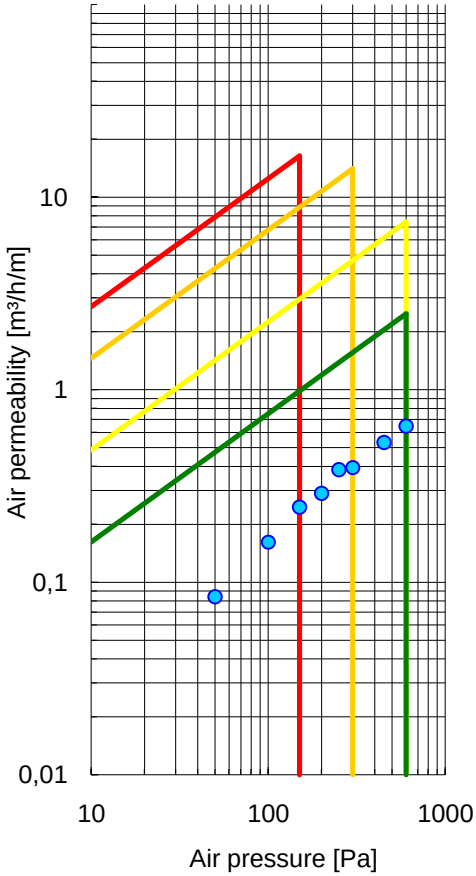
Test results – Air permeability – Negative air pressure

Air pressure [Pa]	Air flow Total [m³/h]	Air flow Area [m³/h/m²]	Air flow Length of joint [m³/h/m]	Class Area [-]	Class Length of joint [-]
50	0.61	0.28	0.08	4	4
100	1.27	0.58	0.16	4	4
150	1.85	0.84	0.25	4	4
200	2.21	1.00	0.29	4	4
250	2.92	1.32	0.38	4	4
300	3.02	1.37	0.39	4	4
450	4.03	1.82	0.53	4	4
600	4.94	2.24	0.65	4	4



Air permeability related to area



Air permeability related to length of joint

The graphs show the classification in relation to the area and the length of joint. Classes 1-4 are indicated by red, orange, yellow and green fields respectively

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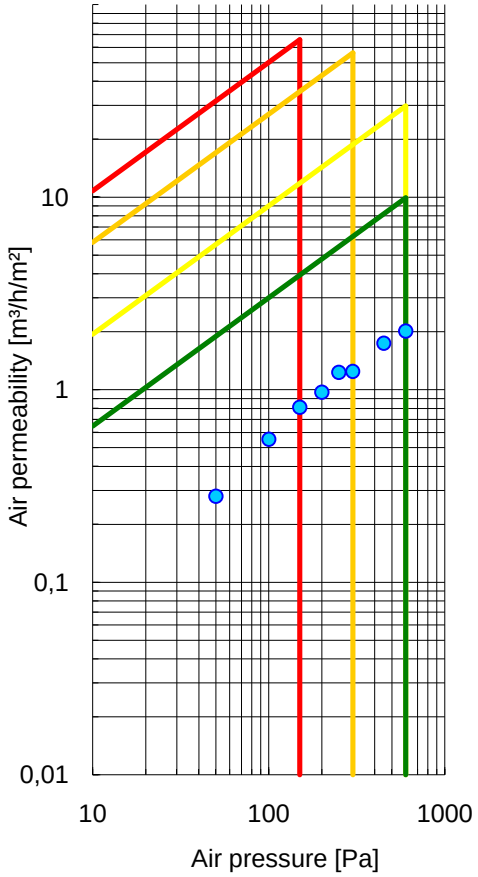
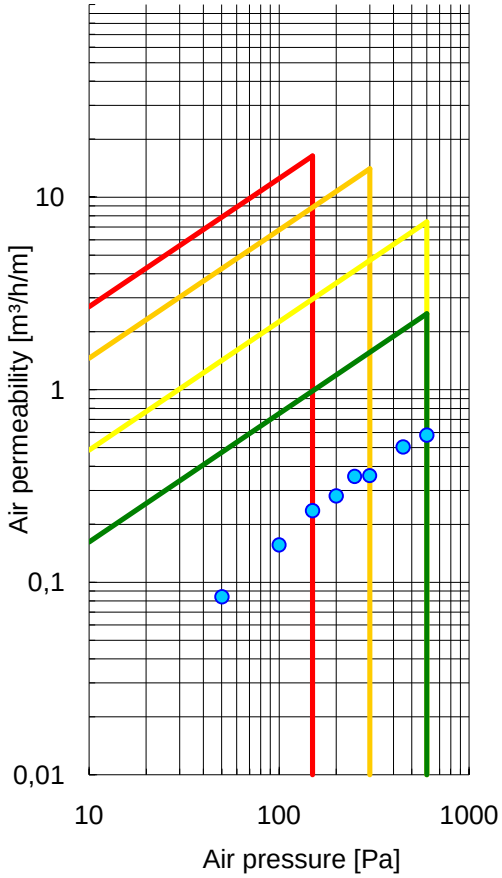
Test results – Average air permeability

Air pressure [Pa]	Air flow Total [m³/h]	Air flow Area [m³/h/m²]	Air flow Length of joint [m³/h/m]	Class Area [-]	Class Length of joint [-]
50	0.61	0.28	0.08	4	4
100	1.22	0.55	0.16	4	4
150	1.79	0.81	0.24	4	4
200	2.14	0.97	0.28	4	4
250	2.71	1.23	0.36	4	4
300	2.74	1.24	0.36	4	4
450	3.85	1.74	0.50	4	4
600	4.45	2.02	0.58	4	4



Air permeability related to area



Air permeability related to length of joint

The graphs show the classification in relation to the area and the length of joint. Classes 1-4 are indicated by red, orange, yellow and green fields respectively

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Test results – Watertightness

Air pressure [Pa]	Duration [min]	Observations [-]	Class [-]
0	15	No water penetration	1A
50	5	No water penetration	2A
100	5	No water penetration	3A
150	5	No water penetration	4A
200	5	No water penetration	5A
250	5	No water penetration	6A
300	5	No water penetration	7A
450	5	No water penetration	8A
600	5	No water penetration	9A
750	5	No water penetration	E750
900	5	No water penetration	E900
1050	5	No water penetration	E1050
1200	5	No water penetration	E1200

NOTE: At the beginning of the test there must, according to the standards, be given three short pressure peaks which are 10% higher than the desired maximum test pressure. In this case, only a pressure of 660 Pa was used.

Door during testing

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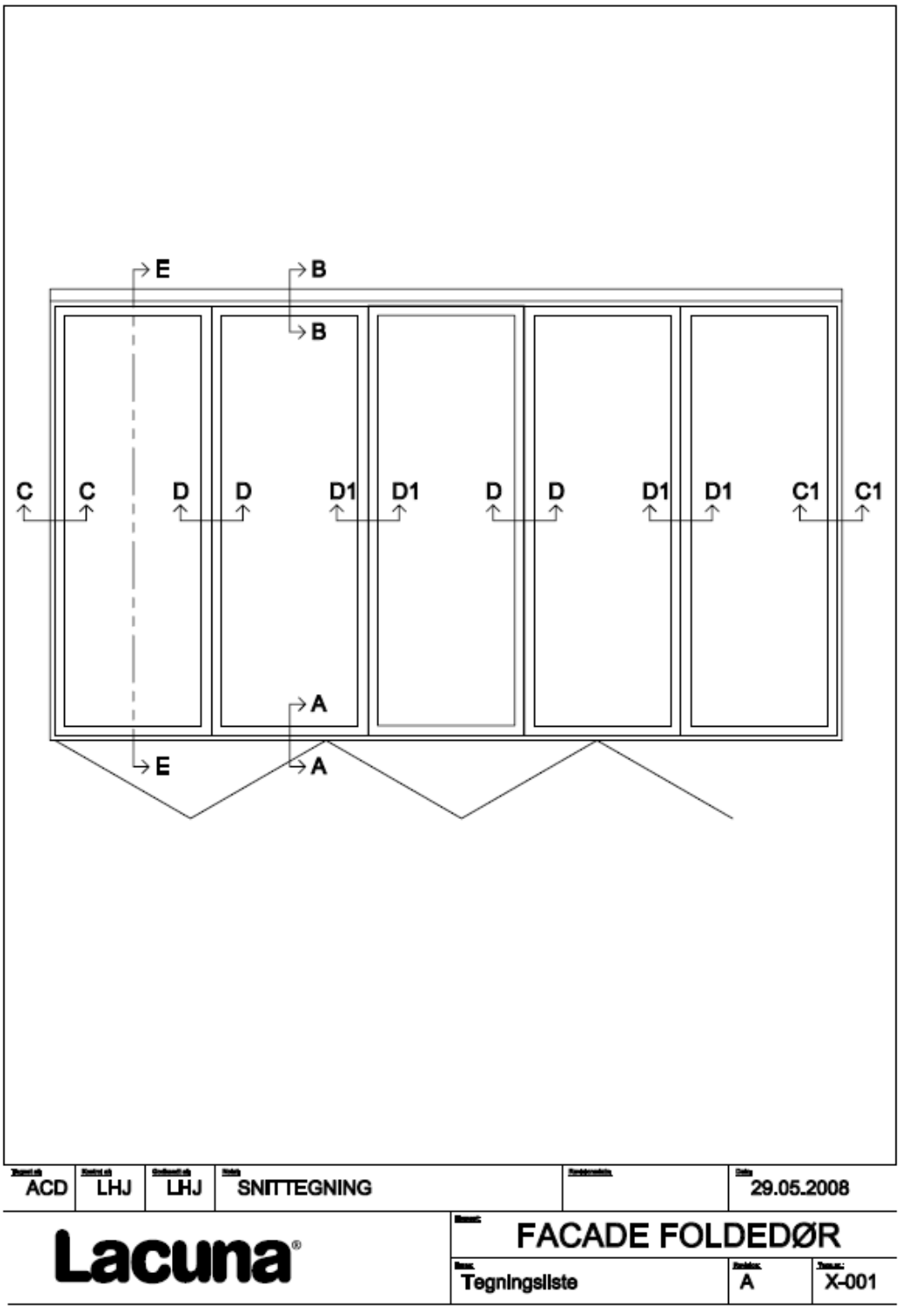

View of folding door

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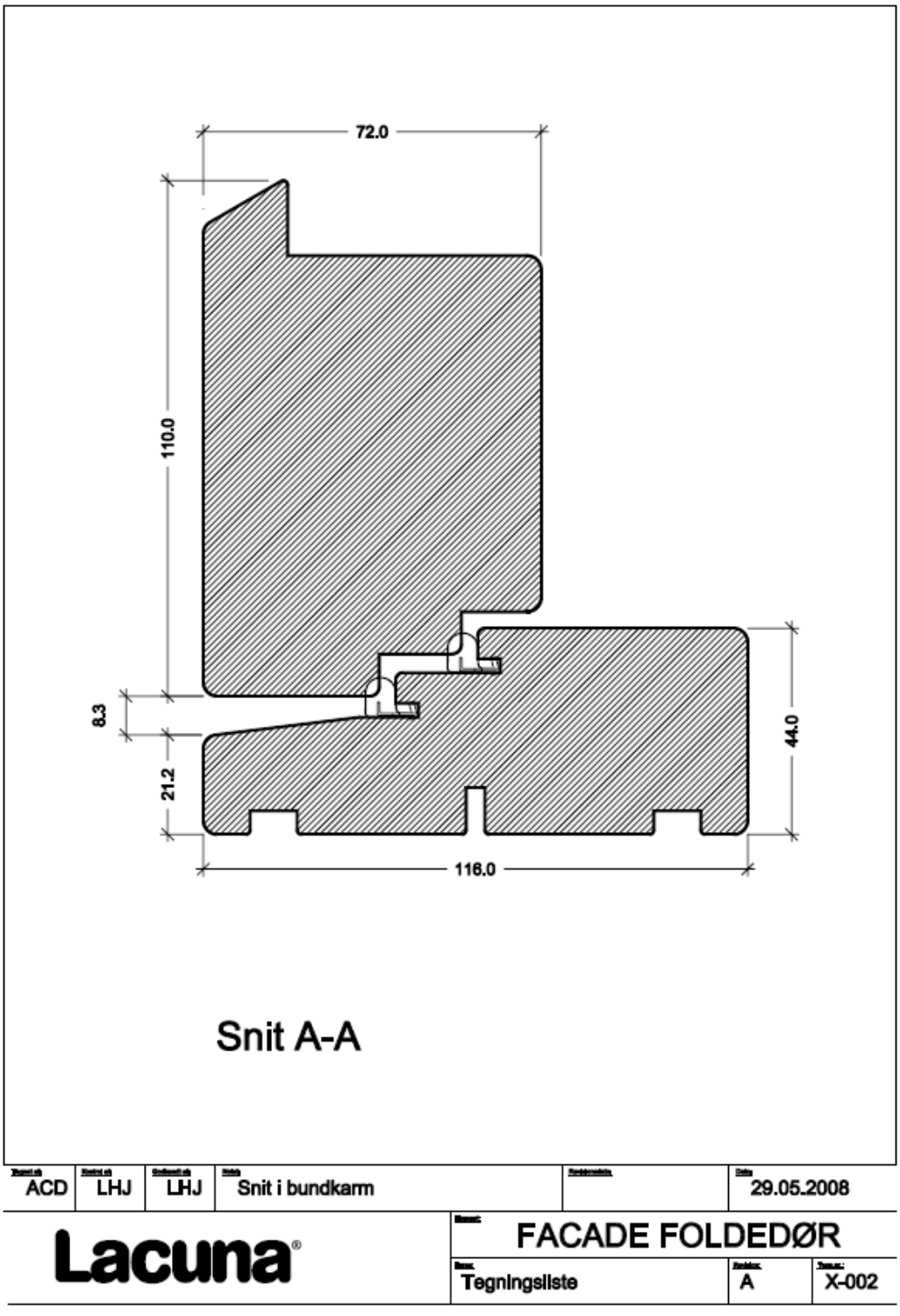

Section of threshold

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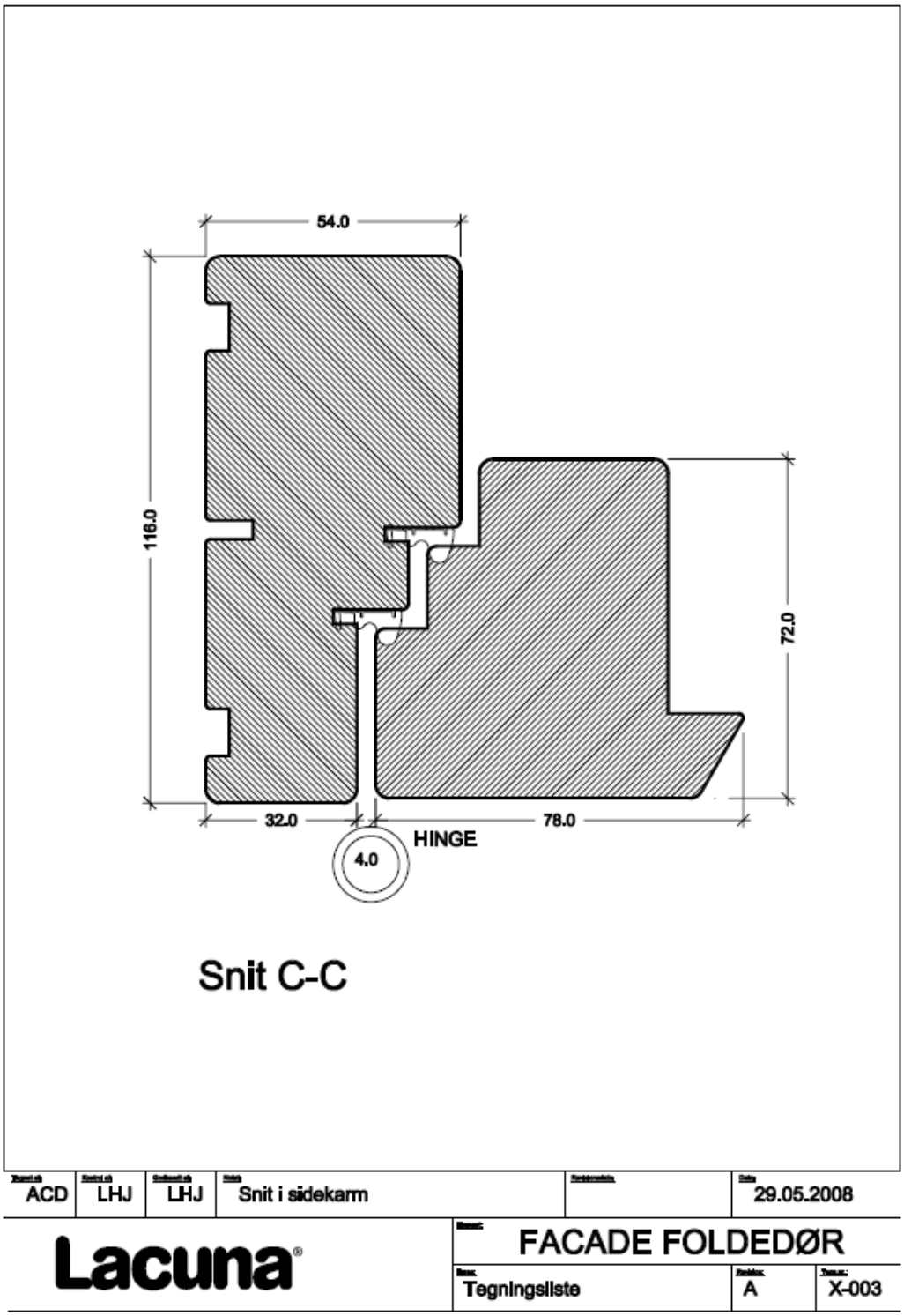

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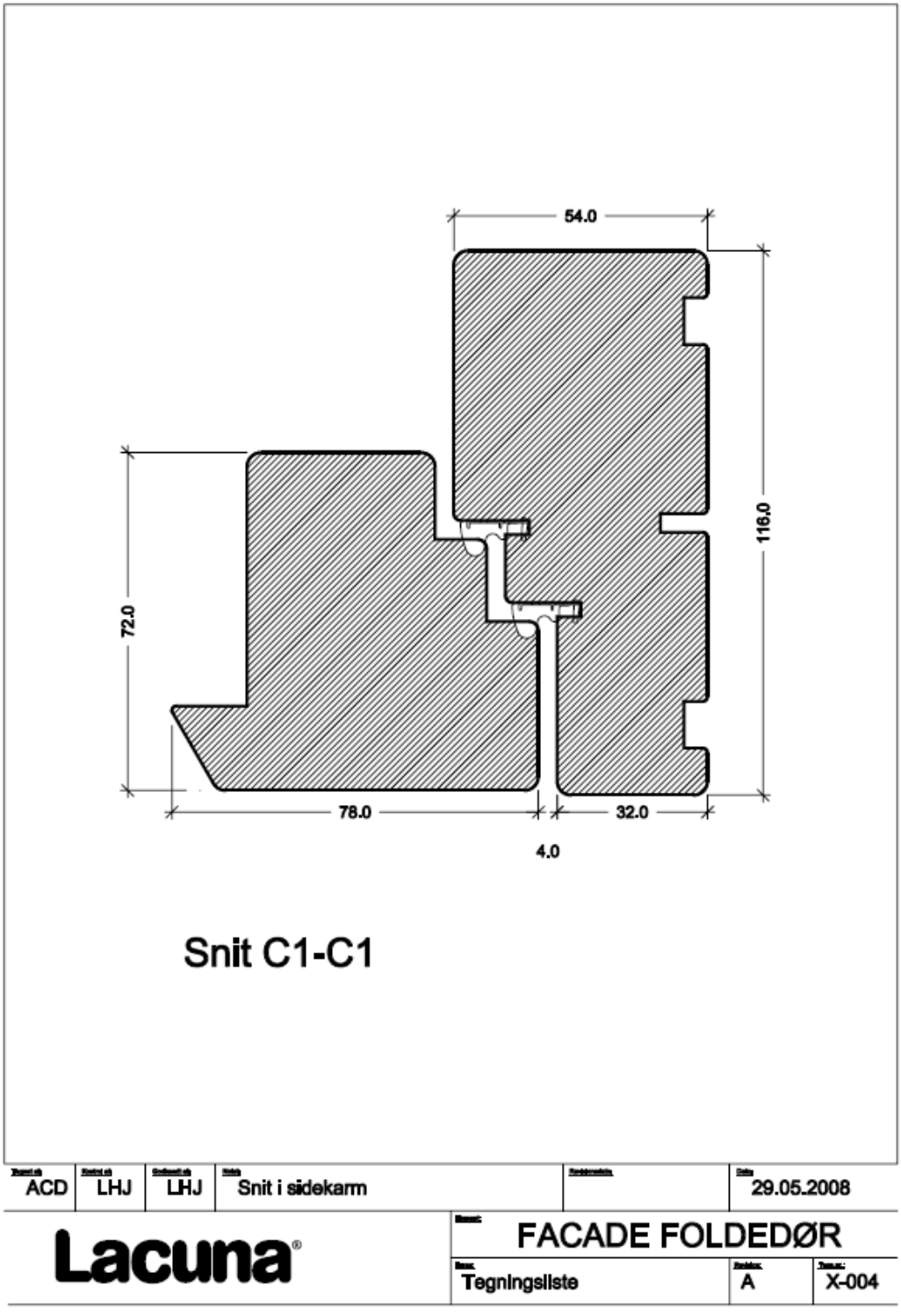

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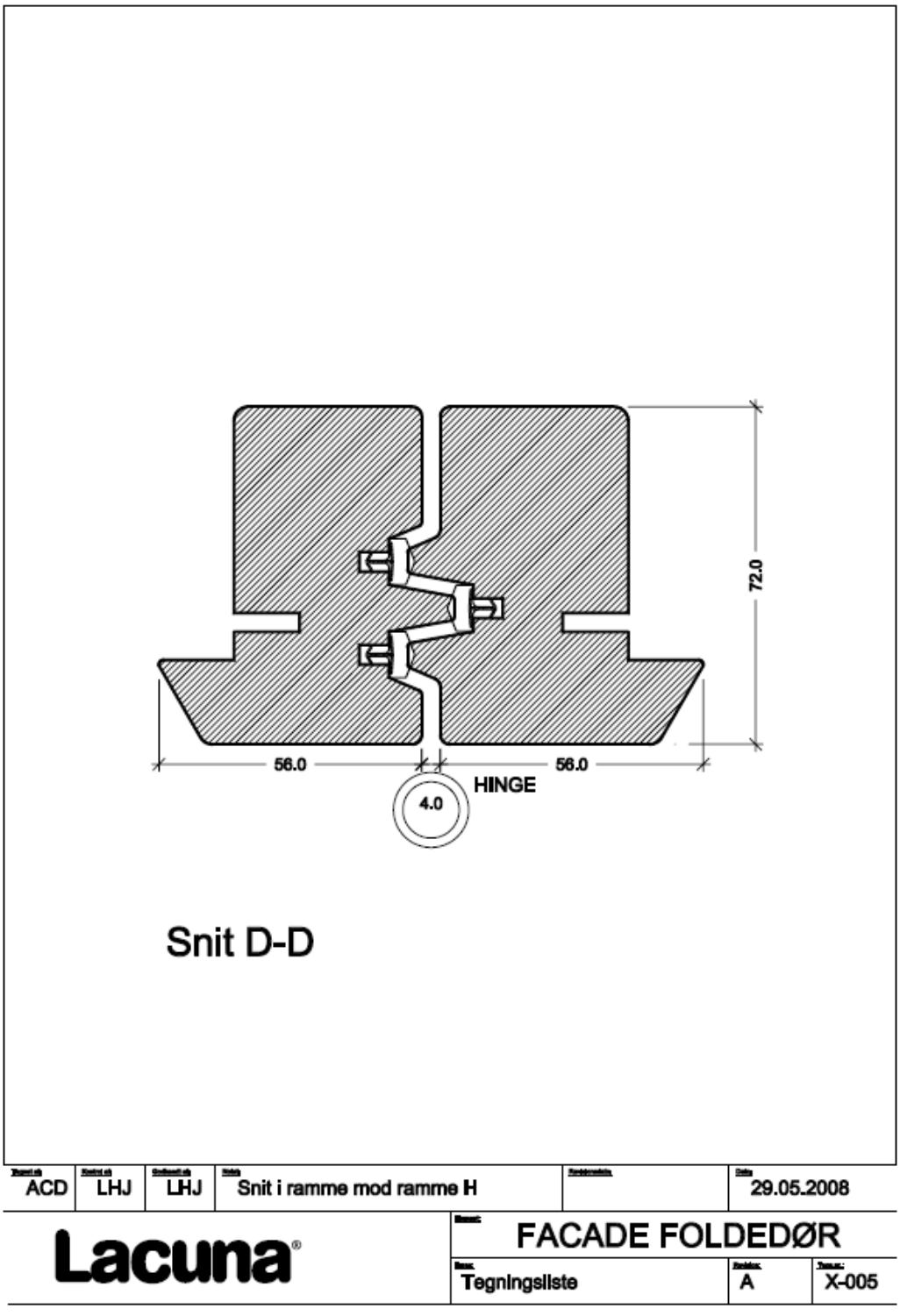

Section of leaf

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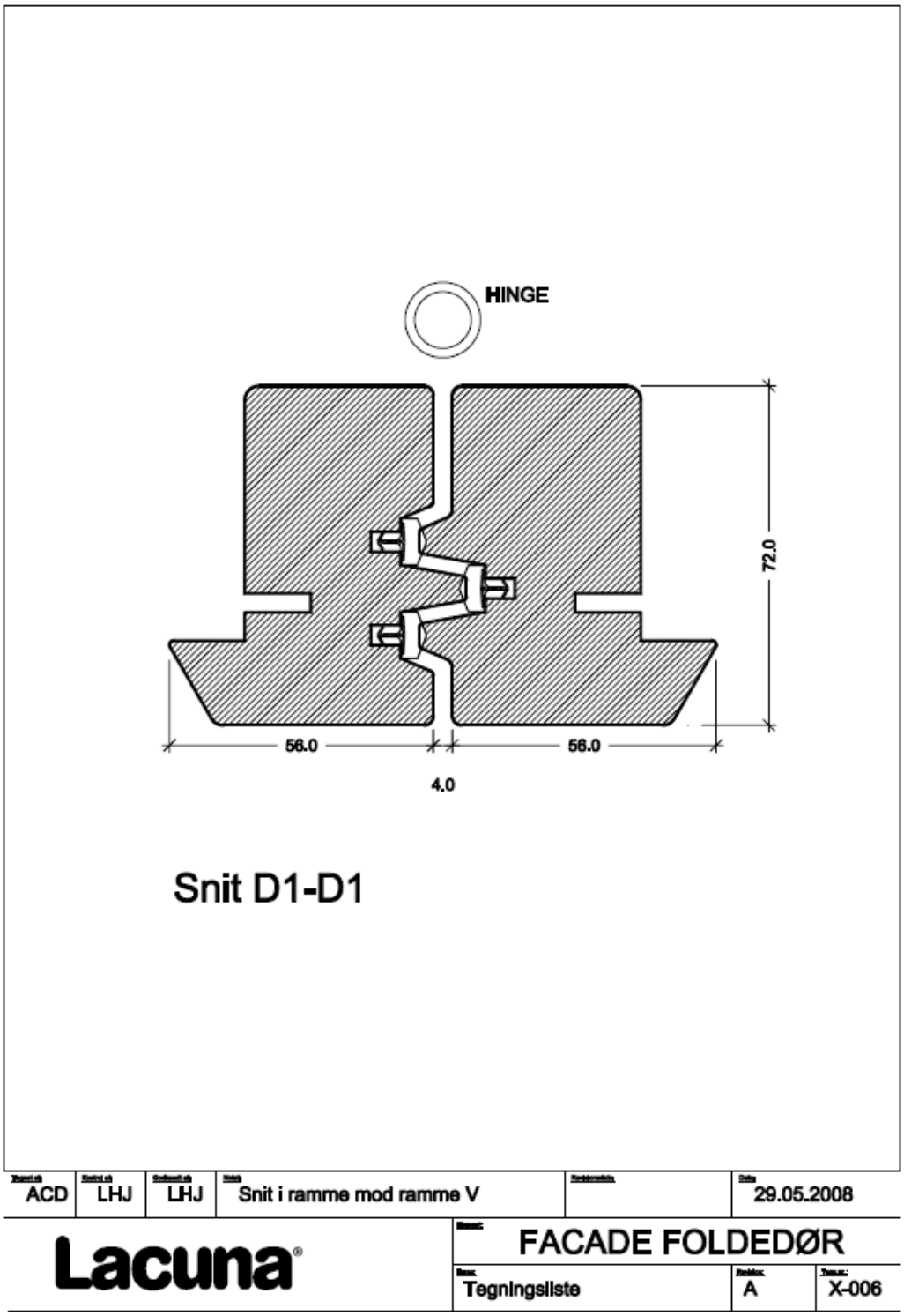

Section of leaf

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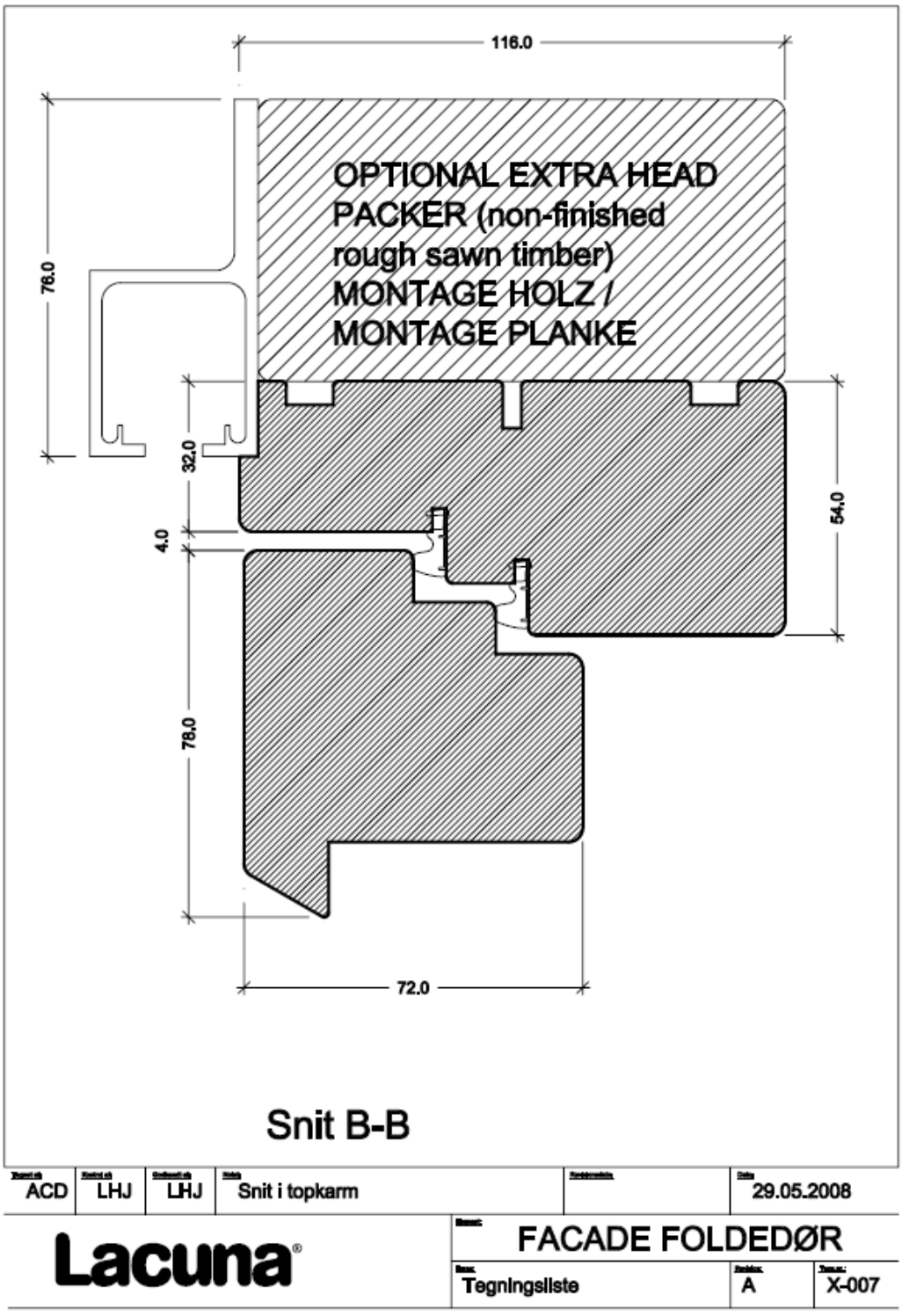

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The general conditions pertaining to assignments accepted by Danish Technological Institute shall apply in full to the technical testing and calibration at Danish Technological Institute and to the completion of test reports and calibration certificates within the relevant field.

DANAK

The Danish Accreditation and Metrology Fund - DANAK - is managing the Danish accreditation scheme based on a contract with the Danish Safety Technology Authority under the Danish Ministry of Economics and Business Affairs who is responsible for the legislation on accreditation in Denmark.

The fundamental criteria for accreditation are described in DS/EN ISO/IEC 17025: "General requirements for the competence of testing and calibration laboratories". DANAK uses guidance documents to clarify the requirements in the standards, where this is considered to be necessary. These will mainly be drawn up by the "European co-operation for Accreditation (EA)" or the "International Laboratory Accreditation Co-operation (ILAC)" with a view to obtaining uniform criteria for accreditation worldwide. In addition, the Danish Safety Technology Authority issues Technical Regulations prepared by DANAK with specific requirements for accreditation that are not contained in the standards.

In order for a laboratory to be accredited it is, among other things, required:

- that the laboratory and its personnel are free from any commercial, financial or other pressures, which might influence their impartiality;

- that the laboratory operates a documented management system, and has a management that ensures that the system is followed and maintained;

- that the laboratory has at its disposal all items of equipment, facilities and premises required for correct performance of the service that it is accredited to perform;

- that the laboratory has at its disposal personnel with technical competence and practical experience in performing the services that they are accredited to perform;

- that the laboratory has procedures for traceability and uncertainty calculations;

- that accredited testing are performed in accordance with fully validated and documented methods;

- that accredited services are performed and reported in confidentiality with the customer and in compliance with the customer's request;

- that the laboratory keeps records which contain sufficient information to permit repetition of the accredited test;

- that the laboratory is subject to surveillance by DANAK on a regular basis;

- that the laboratory shall take out an insurance, which covers liability in connection with the performance of accredited services.

Reports carrying DANAK's accreditation mark are used when reporting accredited services and show that these have been performed in accordance with the rules for accreditation.