



cabinaid

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Quality report

Cabinaid AED Cabinets



Testing for quality assurance

The Cabinaid AED cabinets are thoroughly tested to assure a safe storage of the AED (Automated External Defibrillator) inside. Although most AED's can withstand some weather and environmental conditions it is important that the cabinet does at least the same in any environment, both indoor and outdoor. Therefore the Cabinaid AED cabinets are tested to provide safe storage in the most demanding situations and against extreme weather influences. But also, against the impact from (heavy) objects and all kinds of usage by the public in the most diverse usage situations.

Together with our testing partner DEKRA we have put together a program of tests to meet the demands for safe storage of an AED, indoors and outdoors. Besides, with our unique climate control system, we can ensure that the AED inside a Cabinaid AED Cabinet is always stored in optimal conditions and to be ready for use.

The most important observations, results and conclusions are described in this test report. In addition, the report contains detailed images and explanations of the tests performed. Due to these independent results from DEKRA, we can guarantee the quality of our Cabinaid AED cabinets.

Cabinaid's testing partner

All tests for Cabinaid are precisely performed by DEKRA. For almost 100 years, DEKRA has been ensuring safety. DEKRA is one of the world's leading expert organizations for testing, inspection and certification. Their independent experts are committed to safety at work, at home and on the road. DEKRA is your reliable partner for a safe, secure and sustainable world!



<https://www.dekra.nl/en/about-dekra/>

Testing preparations

All tests were carried out at the DEKRA certification laboratory in Arnhem, the Netherlands. For conducting the tests the cabinet was mounted to a plate using the as standard delivered mounting screws.

Summary of the tests conducted:

- Verification of the degree of protections IK10
- Verification of the degree of protections IP5X
- Verification of the degree of protections IPX6

The entire test information is described in DEKRA test report 2263198.01-INC



Image of mounted cabinet before testing

Test for IK10

The IK code is the degree of protection against external mechanical impacts. The mechanical impact test is performed in conformity with IEC 62208 clause 9.7 and IEC 62262.

The test equipment consists of a test hammer as described in IEC 60068-2-75 suitable for the dimensions of the enclosure. The enclosure was placed on a rigid support as for normal use.

IK code	IK00	IK01	IK02	IK03	IK04	IK05	IK06	IK07	IK08	IK09	IK10	IK11
Impact energy [J]	**	**	**	**	0.5	0.7	1	2	5	10	20	50
Equivalent mass [kg]	**	**	**	**	0.25	0.25	0.5	0.5	1.7	5	5	10
Height of fall [mm ± 1%]	**	**	**	**	200	280	400	400	300	200	400	500

The following impacts were applied:

Enclosure	IK rating	Impact [J]	Weight [kg]	Height [mm]
Front Lid Impact 1	10	20	5	400
Front Lid Impact 2	10	20	5	400
Front Lid Impact 3	10	20	5	400
Left Side, Round Cup Impact 4	10	20	5	400
Left Side, Round Cup Impact 5	10	20	5	400
Bottom Side, Round Cup Impact 6	10	20	5	400
Top side Round Cup Impact 7	10	20	5	400
Right Side, Round Cup Impact 8	10	20	5	400

Table 2: Mechanical impacts

The impacts were applied with even distribution over the faces of the enclosure:

- Three times to each exposed surface in normal use whose largest dimension is not above 1 m;
- Five times to each exposed surface in normal use whose largest dimension is greater than 1 m. The impacts were applied with even distribution over the faces of the enclosure. The test was not applied to the enclosure components (e.g. locks, hinges, etc.).

IK10 compliant

After completing the tests, the cabinet remains firmly hanging. It is possible to remove and reinstall removable covers and to open and close doors.

This makes the tested AED cabinet fully IK 10 compliant regarding the accepted standards.



IK10 impacts front



IK10 impact side

Test for IP56

The test for Ingress Protection or International protection ratings are international defined as effectiveness of electrical enclosures.

The first digit defines the protection against solids and is tested in two ways. The protection against hazardous parts and protection against solid foreign objects. The second part of the test is made using a dust chamber under EN/IEC 62529 standards.

The second digit defines the protection against liquids and is tested by the protection against powerful water jets. The test is made using a water jet under EN/IEC 60529 standards.

Test for IP5x

The test for protection against access to hazardous parts is done with a probe as shown in the image below on the left. This probe is pushed against any openings of the enclosure with a force of $1\text{N} \pm 10\%$ as shown on the image on the right.

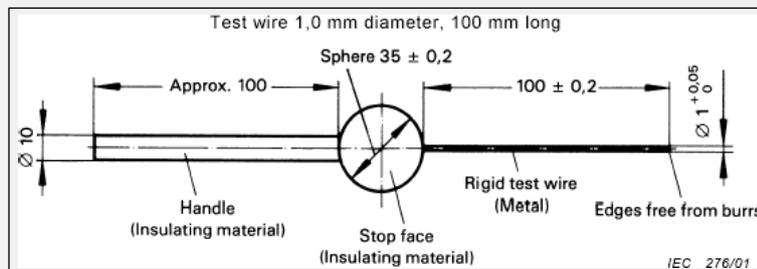


Image of the probe and picture of the probe used during the hazardous parts test.

The test for protection against solid foreign objects is done in a dust chamber using talcum powder. The amount of talcum powder used is 2kg per cubic meter of the test chamber. The object of the test was to draw into the enclosure, by means of depression, a volume of air 80 times the volume of the sample enclosure tested without exceeding the extraction rate of 60 volumes per hour. The depression did not exceed 2 kPa (20 mbar) on the pressure gauge.

- Size of dust particle: $\leq 75 \mu\text{m}$
- Test duration: 8 hours

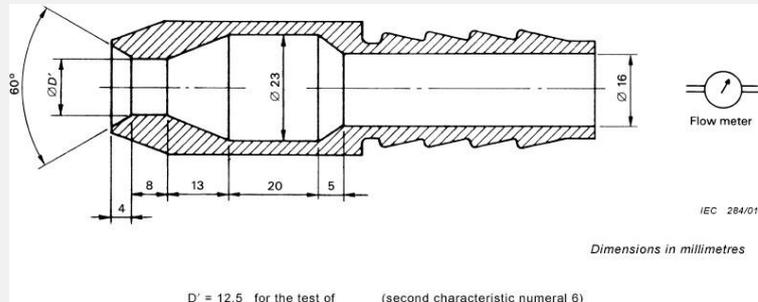
IP 5x Results

The hazardous parts test is fully performed to standard. The full diameter of the access probe did not penetrate through an opening of the enclosure and adequate clearance was kept.

The test against solid foreign objects is performed to standard. The AED module within the cabinet was not exposed to the dust.

Test for IPx6

The test for protection against powerful water jets is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as shown in the image below.



The conditions to be observed are as follows:

- Internal diameter of the nozzle: 12,5 mm;
- Delivery rate: 100 l/min \pm 5 %;
- Water pressure: Adjustable to achieve the specified delivery rate
- Core of the substantial stream: Circle of approximately 120 mm diameter at 2,5m distance from nozzle;
- Minimum test duration: 3 min;
- Distance from nozzle to surface: Between 2,5 m and 3 m.

After testing the enclosure is inspected for ingress of water.

IP x6 Results

The tested enclosure showed signs of little ingress of water. There were signs of water ingress visible in the outer The AED module placed in the AED cabinet was completely dry. This is within the acceptance conditions as the little water ingress is not expected to be harmful to the AED device.

IP 56 Results

The tested AED cabinet protects the AED device against hazardous parts, dust and water ingress. However some of the parts may enter the outer compartment of the cabinet it is not expected that the ingress is harmful for the AED device as the device was never touched by dust or water during the tests.

Images IP testing

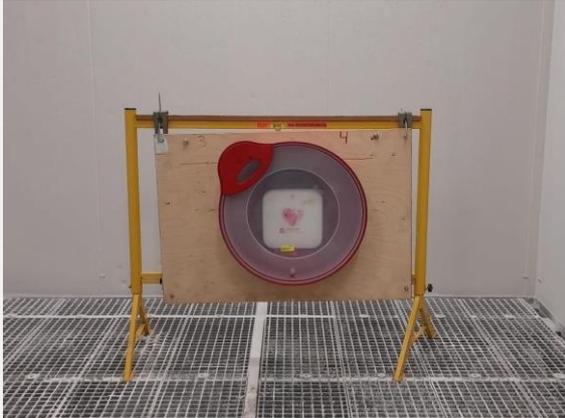


Image before IP 5X dust test



Image after IP 5X dust test



Image during IP X6 water test front



Image during IP X6 water test side



Images after both tests



Climate control regulation (Pro only)

The climate control unit regulates the temperature conditions within the AED cabinet. The software of the climate control unit is especially programmed for Cabinaid and extensively tested by the developer. The fully automated climate control unit not only activates the heating and cooling but also powers the LED strip and alarm system.

It operates on a safe 12 volt system powered by an external power supply with very low power consumption.

The Cabinaid Pro is tested in rather extreme temperatures and the climate control ensures safe storage of any AED from -20 °C up to 60 °C. The circuit board of the Cabinaid Pro climate control unit contains a temperature meter. This will activate the circuit board when active cooling or heating is required.

Active heating

The heating function will be activated when the temperature inside the cabinet drops below 5 °C and keeps heating until the temperature reaches 10 °C.

Active cooling

The active cooling function is unique and will actively blow cool air through the enclosed compartment of the cabinet when necessary. The function will be activated when the temperature inside the cabinet reaches above 40 °C and keeps cooling until the temperature drops below 30 °C.



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