



# CADScor<sup>®</sup> System

A new first line rule-out device  
for significant CAD





# An efficient, reliable and easy to use rule-out diagnostic aid for significant CAD

Recent studies have shown that as few as 6–10% of patients referred to non-invasive testing suffer from significant coronary artery disease (CAD).<sup>1,2,3</sup>

Chest pain can be a sign of CAD but is also a symptom related to muscle pain, stomach conditions and psychological stress. Healthcare professionals need an efficient, reliable and easy to use rule-out support to detect significant CAD. Currently available methods can be time-consuming, costly and include invasive examination, exposing the patient to radiation, stress and anxiety.

## A simple test to put a patient's mind at rest

The CADScor®System is an innovative, ultrasensitive analytical device designed to support a safe, reliable and cost-efficient rule-out of significant CAD at the first stage of the diagnostic pathway.

## Recording and analysing heart sounds

The CADScor®System can be used on symptomatic patients as a first line diagnostic aid before any other non-invasive testing is performed. Some other commonly used risk stratification strategies for patients with chest pain are known to overestimate the likelihood of CAD, exposing patients to costly investigations at higher risk.

Based on acoustic technology, the CADScor®System records the heart sounds of the resting patient to analyse the myocardial movement and blood flow in the coronary arteries. The recording detects heart sound abnormalities, such as coronary murmurs correlated to coronary stenosis and stiffness.



The touch display gives guided instructions and results.



## Immediate results

In approximately ten minutes, results are shown as a calculated CAD-score from 0-99, categorising patients into two groups – low risk (CAD-score at or below 20) and elevated risk (CAD-score above 20). The diagnostic aid works as a support for decisions in the diagnostic pathway and reduce the number of patient referrals to costly investigations.

## Benefits of the CADScor®System

- Non-invasive, point-of-care-test reducing waiting time and stress for patients
- User-friendly, accurate and reliable rule-out diagnostic aid to be used prior to other testing
- Cost-effective and safe diagnostic aid displaying immediate results



# The CADScor®System

**A new, ultrasensitive diagnostic aid designed for accurate, reliable and cost-effective patient rule-out of significant CAD.**

## **Based on sound principles**

When arteries narrow due to CAD, turbulence may occur in the bloodstream as blood passes through the constriction. Turbulence-related sounds – murmurs – are an important indicator of significant CAD.

## **A rapid first-line diagnostic aid**

The CADScor®System is using innovative acoustic technology, ultrasensitive phonocardiography, to listen to the entire heart. In approximately ten minutes, the CADScor®System detects abnormalities in the myocardial movement and blood flow, including sounds that can be difficult to register with a human ear or a normal stethoscope.

The portable all-in-one device is about the size of a smartphone. It consists of two parts: a disposable, adhesive patch, and a reusable sensor unit with microphones, microprocessors, software and a touch display with guided instructions and results. The device is simply attached to the patient's chest, while he or she is laying down. It is important that it is placed at the 4th intercostal space to the left of the sternum and that external noise is kept to a minimum while recording the heart sounds.



## **Algorithms to support an immediate rule-out**

During the test, the CADScor®System analyses the recorded heart sounds by identifying abnormal sound patterns associated with CAD. The more or the higher severity of abnormalities detected, the higher the risk that the patient has CAD. Eight acoustic features are combined with clinical risk factors into a CAD-score from 0 to 99. At the end of the procedure, the CAD-score is presented on the CADScor®Sensor display.

For a fast and simple rule-out, patients are categorised into two groups – low risk (CAD-score at or below 20) and elevated risk (CAD-score above 20). This categorisation provides an efficient and reliable way to decide on the next steps in the diagnosis pathway. Low-risk patients can be ruled out for CAD, with a very high level of certainty (negative predictive value of 97.2% at a 10.2% CAD prevalence)<sup>4</sup> while patients with an elevated risk are, in most cases, referred to a specialist for further examinations.

The CADScor®System has an integrated QR code for convenient and easy printing, archiving and distribution of patient reports using a mobile device, or a QR code scanner set up for the purpose.



# Benefits of the CADScor® System

## For healthcare professionals

The CADScor® System is a user-friendly, intuitive point-of-care test that can be conducted by all trained healthcare professionals on symptomatic patients. The device displays an accurate, easily interpreted result, reducing the number of referrals to expensive test procedures and shortening waiting time for further investigations.

## For patients

Patients with chest pain often suffer from stress caused by anxiety of getting a diagnosis. Currently used non-invasive methods for diagnosing CAD expose the patient to, for example, radiation, contrast medium and stress. The CADScor® System is a non-invasive rule-out diagnostic aid that records the heart sounds of the resting patient. The procedure takes approximately ten minutes and the results can be seen immediately. For patients with a score indicating low risk of significant CAD, no further examinations are recommended.

## An easy solution to bring down costs, risks and stress

- A first line diagnostic aid to support decisions on the diagnostic pathway
- Can be used by any trained healthcare professional
- A quick, easy and reliable test that gives a clear result
- Non-invasive, safe procedure, free from radiation and contrast medium
- Saves cost, time and resources while giving low-risk patients peace of mind





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## References:

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2. Winther, S. et al. Diagnostic performance of an acoustic-based system for coronary artery disease risk stratification. *Heart* 2018; 104, 928-935
3. Douglas PM et al. Outcomes of anatomical versus functional testing for coronary artery disease. *N Engl J Med* 2015; 372, 1291-1300
4. CADScor®System User Manual, EU-UK-revision 12.1, DEC 9th, 2021. From software version 3.3.0 (040) EU-CE

The CADScor®System received its CE mark in 2015 and its FDA approval in 2020. The device is currently available in Denmark, Sweden, Norway, UK, Germany, Austria, Switzerland and USA.