

# Starrsed ST

 **RR Mechatronics**  
Masters of Measurement



Gold standard ESR



# Starrsed ST

Does your laboratory perform erythrocyte sedimentation rate (ESR) tests and are you looking to automate this process? If so, the Starrsed ST is the obvious solution. Starrsed is the world's only product line that allows laboratories to perform ESR tests that are fully in agreement with the Westergren Method (the Gold Standard). The Starrsed ST is entirely automated and standardized, which makes it easy to use for every employee in your laboratory. The Starrsed ST achieves the highest degree of reliability in testing, leaving you and your operators available for other tasks in the laboratory.

## Westergren Sedimentation Method

One of the oldest and most frequently requested blood tests is ESR. It has not changed fundamentally in the way it is carried out since Westergren described it in 1921. In 2011, the International Council for Standardization in Hematology (ICSH) and the Clinical and Laboratory Standards Institute (CLSI) defined the Reference Method for ESR to be the Westergren Method; the Gold Standard.

The objective of ESR testing is to measure inflammatory state. The Westergren Method measures both infections related to infectious diseases and chronic inflammatory conditions. In addition to being very reliable, the Westergren Sedimentation Method is also amongst the cheapest laboratory tests available.

## The Process

RR Mechatronics has developed the Starrsed ST, which is an ESR tube based analyzer with a small footprint. The Starrsed ST, in full operation, produces sample results up to every 30 seconds. After manually applying the sample tube for aspiration, the entire process is fully automated. A built-in barcode reader identifies each sample. The Starrsed ST will then perform an ESR measurement fully unattended.

## How does it work?

After presenting a sample tube, the aspiration system is activated. A needle pierces the cap and blood is drawn from the tube. The Starrsed ST has a fully integrated diluting system, which dilutes the blood with the Starrsed citrate diluent in a 4:1 ratio, in full accordance with the Westergren Method. The diluted blood sample is then drawn up into one of the 24 Westergren pipettes inside the instrument.

The instrument measures the sedimentation for each pipette within 30 or 60 minutes. Most users prefer the 30-minute mode.

The built-in printer produces the result that is also sent automatically to the LIMS (Laboratory

Information Management System). Simultaneously, the used Westergren pipette is automatically cleaned and prepared to receive a new sample. Additionally, all 24 pipettes receive a fully automated, intensive end-of-day cleaning using Starrsed X-Clean. All waste fluids, i.e. blood, diluent and X-Clean, are collected in a built-in waste container, ready for disposal as stipulated by local regulations.

### Controls

Good Laboratory Practice advises the use of controls to ensure the continued reliability of the test results. RR Mechatronics supports this with Starrsed Control. It is to be used in the ESR analyzers as if it were a real patient sample. Starrsed Control is processed exactly the same way and is fully compliant with the ICSH recommendations and CLSI procedures. The Starrsed ST recognizes the test tube by its barcode, reads the ESR range, checks the expiration date of the control, and analyzes the sample. Starrsed Control gives you maximum reliability at minimal effort and costs. Starrsed Controls give maximum reliability at minimal effort and costs.

An External Quality Assessment Service program (EQAS) is available to enter your control data. In EQAS your results are anonymously compared with relevant data of users of same instruments and controls of the same batch (the so called peer group).

### Additional Benefits

The Westergren glass tubes are re-usable after each automatic cleaning. Therefore no additional costs for new pipettes. No disposable plastics of any kind are used. As opposed to other test instruments, Starrsed instruments actually identify and report hazy samples so that the lab technician may decide on further testing. The Starrsed ST makes use of EDTA sample tubes. The advantage is that EDTA blood is very stable compared to pre-citrated samples, allowing for accurate ESR test results up to 24 hours after collection. This provides laboratories with even more logistical flexibility. Because the Starrsed ST dilutes the blood, which is in agreement with the Westergren Method, it compensates for different hematocrit levels. The hematocrit level of the sample therefore will not influence the accuracy of the ESR measured.

### Purchase or Lease

The Starrsed ST may be purchased, it may be leased over a period of time, or installed on a cost-per-test basis. The last option comes with a pre-programmed chip card that allows for the agreed upon number of tests. When it runs out, new cards may be purchased. This brings the automated Westergren Method within every professional's reach.

All specifications of the Starrsed ST are available on our website [www.rrmechatronics.com](http://www.rrmechatronics.com)





## The Starrsed Line

The Starrsed line of ESR automated instruments is unique by the fact that it has automated the Westergren Method and fully complies with the published reference method, including working with diluted EDTA blood. The Starrsed line offers several types of ESR analyzers. Our solutions range from tube-based to rack-based to track-based, the latter resulting in the highest level of automation possible. Laboratories that operate different Starrsed instruments in different capacities are assured that correlations are precise and fully reliable.

A complete overview is available on our website [www.rrmechatronics.com](http://www.rrmechatronics.com)

## Overview of RR Mechatronics

RR Mechatronics: Masters of Measurement. Our people are passionate about the invention and development of highly precise analytic instruments. RR Mechatronics, established in The Netherlands in 1986, focuses on medical analytics laboratory instruments. We serve IVD laboratory customers and OEM-partners all over the world. RR Mechatronics is the world leader in automated true Westergren ESR instruments. Tens of millions of ESR tests are performed every year with RR Mechatronics instruments, the only ones fully complying with the Westergren Method. In addition to ESR solutions, RR Mechatronics has developed a unique and highly specialized red blood cell analysis platform to evaluate the rheology of blood. It measures, among others, RBC deformability and aggregation and is used in the diagnosis and treatment of malaria, sickle cell disease, and RBC membrane disorders. In addition to the haematology related instruments, RR Mechatronics develops very specific environment related high technology instruments. To complement our line of instruments, we also offer diluents, cleaning-agents, controls, and specific reagents. For over 25 years we have adhered to the belief

in the exponential strength of technological advancement. RR Mechatronics has a track record of thinking in terms of solutions, not problems. We do not have all the answers, but persistently strive to find them in close collaboration with research scientists and our OEM-partners. These partnerships significantly contribute to our high quality work.



## Global Distributors Network

RR Mechatronics is active in over 40 countries worldwide. Where we don't sell and service directly, we have strong partnerships with locally renowned, highly specialized, and certified distributors. We do understand that service of daily used instruments must be performed on-site and our dealers are organized to do just that. The focus on uptime is paramount. All of our distributors are required to have factory-trained engineers available locally. Our distributors also offer service contracts, which can include both immediate response and planned maintenance.

## RR Mechatronics USA

Mechatronics USA is the specialized sales and service organization for RR Mechatronics instruments sold in the United States. We service hundreds of sedimentation instruments each year by means of dedicated service teams. We understand that service of daily used instruments must be performed on-site and we are organized to do so. The focus on uptime is translated into service contracts that include both immediate response and planned maintenance. Mechatronics operates one service number for any service request and is available 24/7





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