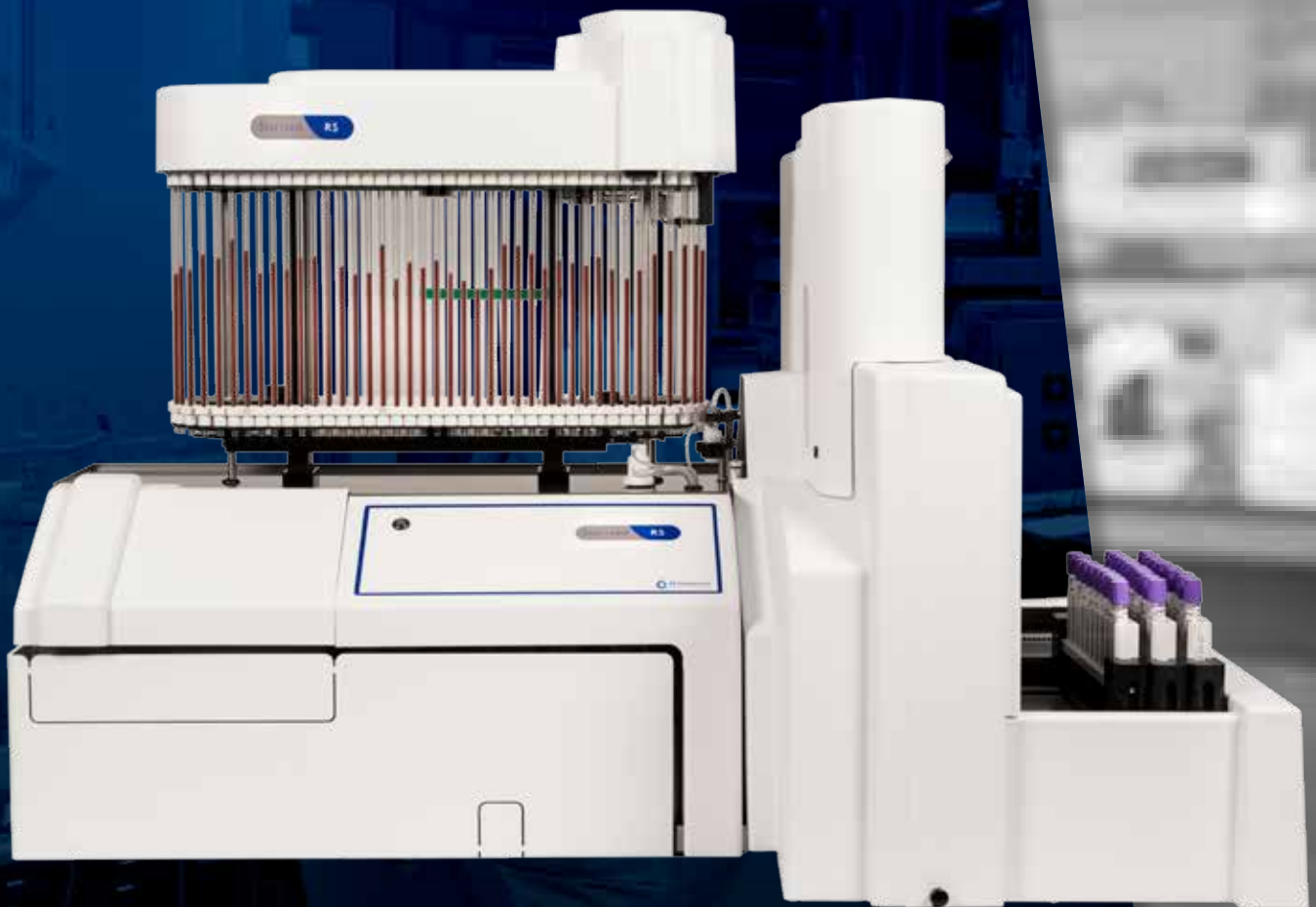


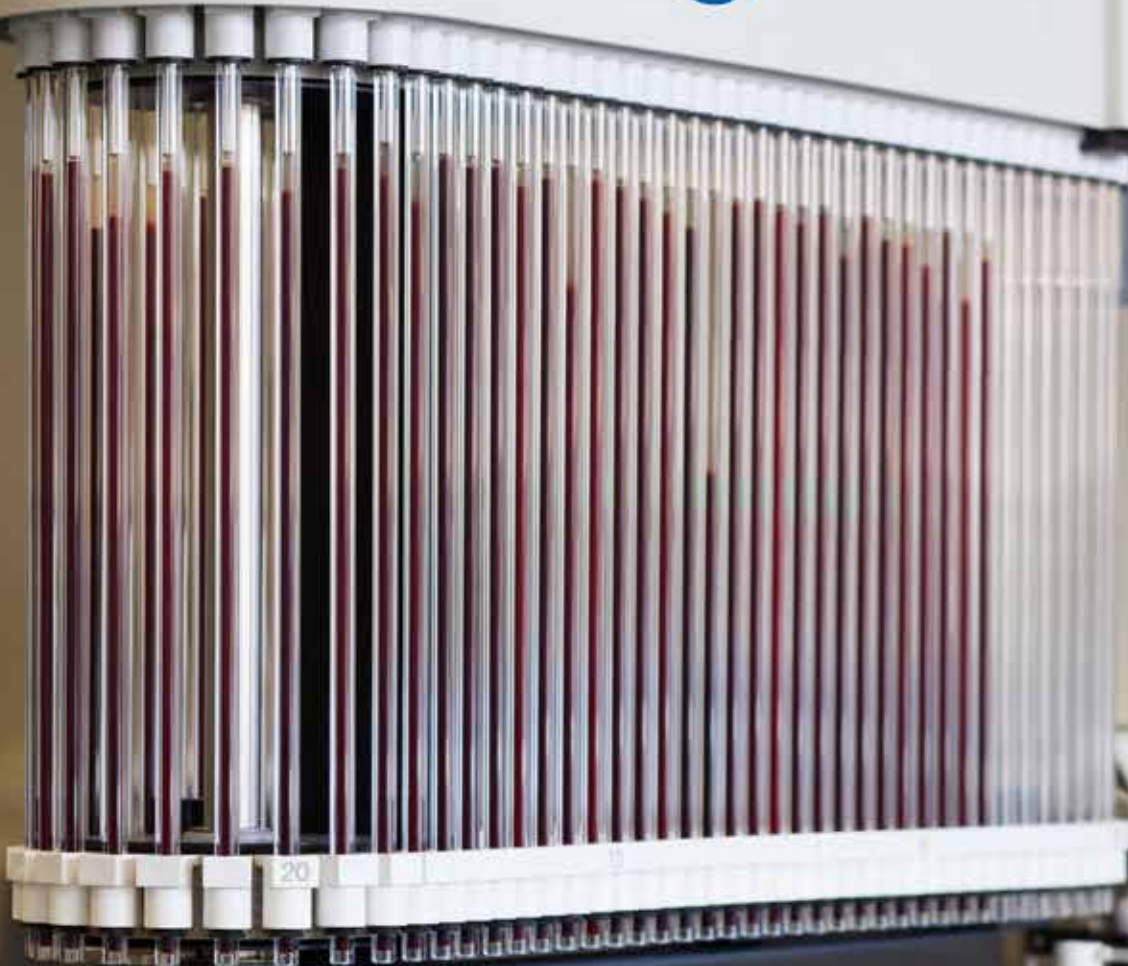
Starrsed RS

 **RR Mechatronics**
Masters of Measurement



Gold standard ESR

Starrsed RS



Starrsed RS

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Does your busy laboratory perform up to 135 erythrocyte sedimentation rate (ESR) tests per hour and are you looking to automate this process? Or did you already automate this process but are you looking for a smarter product? If so, the Starrsed RS is the obvious solution. Building on the success of the Starrsed line, the Starrsed RS has a built-in rack loader and a large capacity. Starrsed is the world's only product line that allows laboratories to perform ESR tests at large scale that are fully in agreement with the Westergren Method (the Gold Standard). An hourly capacity of approximately 135 samples brings ESR sampling to new heights. The Starrsed RS 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

The Starrsed RS works with standard blood cell counter racks and performs dedicated ESR measurements fully unattended. Simply place any blood cell counter rack in the rack-adaptor and walk away – the Starrsed RS takes over. The rack loader minimizes the operator's time to virtually zero and makes it easy to use by every employee in your laboratory. A built-in barcode reader identifies each sample. Capable of bi-directional communications with the laboratory information management system (LIMS), the Starrsed RS knows which samples require ESR testing and which do not.

How does it work?

The instrument is able to process up to five racks at a time, containing up to 12 blood sample tubes each. Room for extra samples is available as soon as the initial racks are processed. The Starrsed RS pre-mixes the blood sample automatically by rotating the rack nine times before actually drawing the sample from the tube. The Starrsed RS checks the barcodes and then starts sampling each tube requiring an ESR test.

The aspiration system is activated and the needle pierces the cap. Blood is drawn from the tube. The Starrsed RS has a fully integrated diluting system, which dilutes the blood with the Starrsed 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 84 Westergren pipettes inside the instrument. The optional printer gives the result that is also sent automatically to the LIMS.

Cleaning

The used Westergren pipettes are automatically cleaned and dried after each test and ready for a new sample. Additionally, all 84 pipettes receive an automatic end of day cleaning and rinsing that uses special Starrsed agents. This prevents any bacterial growth or protein build-up. All waste fluids, i.e. blood, diluents, cleaning and disinfectant agents, are collected in a built-in waste container, ready for disposal as stipulated by local regulations. It is also possible to connect the waste line to a centralized waste system.

Easy to use

A fully intuitive touch screen or mouse is all you need to operate the Starrsed RS. The connected PC stores all data and allows for easy access. A push of a button is all that is needed to produce the entire instrument operating history. The built-in QC-program monitors the performance of the Starrsed RS daily, and generates output files for use in Excel or external QC-programs.

Controls

Good Laboratory Practice (GLP) 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 QC test results are saved separately from patient test results and appear on a designated QC page. As a result, your laboratory is always able to check on the instrument's status. 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 with Starrsed Cleaning agent. Therefore no additional costs for new pipettes. No disposable plastics of any kind are used. It is easy to add the Starrsed RS to your laboratory as it accepts virtually every brand of blood cell counter rack and all regular types of sample tubes. As opposed to other ESR test instruments, Starrsed instruments actually identify and report hazy samples so that the lab technician may decide on further testing.

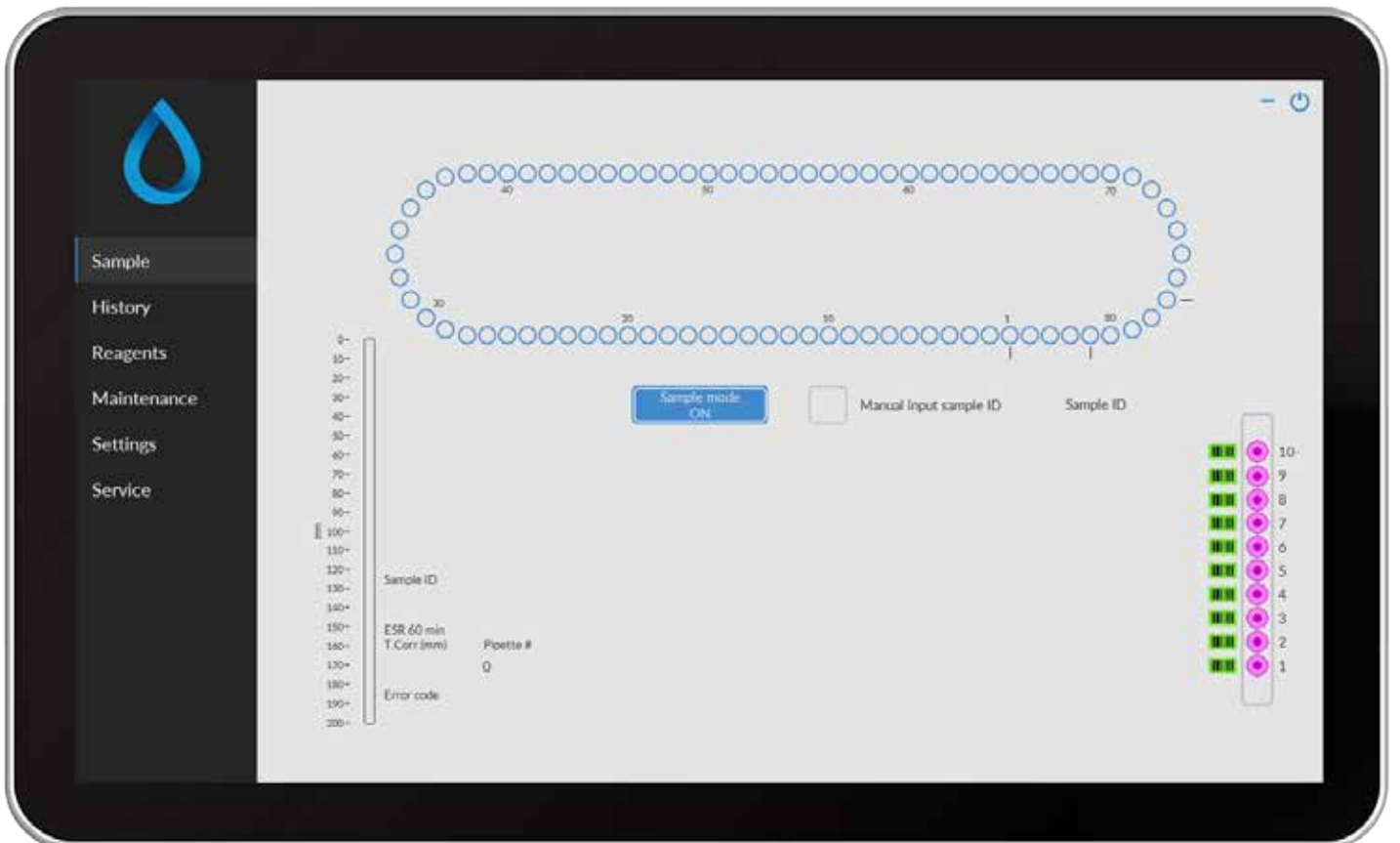
The Starrsed RS makes use of EDTA sample tubes. The advantage is that EDTA blood is very stable compared to pre-citrated samples, allowing for accurate ESR test results up to 24 hours after collection. This provides laboratories with even more logistical flexibility. Because the Starrsed RS dilutes the 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 RS may be purchased, leased over a period of time, or installed on a cost-per-test basis. This brings the automated Westergren Method within every professional's reach.

All specifications of the Starrsed RS are available on our website 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

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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