Targeted therapy stops the bleeding.

Easy and safe handling.
Fast therapeutic decisions.
Advanced diagnostic safety.
Ensuring both, the quality and the supply of blood products is becoming increasingly difficult. This is leading to a more rational use of the limited resource “blood” and to a critical view on the need of blood transfusions.

Blood loss, anaemia and blood transfusions are independent predictors for worse outcomes and patients’ quality of life. This includes an increase in morbidity and mortality, as well as a prolonged stay in hospital. In short, transfusions typically lead to avoidable complications and costs.

In this context, the targeted ROTEM®-based bleeding control solution is integral to Patient Blood Management that is predicated on both preemptive and reactive blood-saving measures. In fact, WHA 63.12, all 193 WHO member states have been asked to implement the concept of PBM in a timely manner.
Complicated bleeding situations can occur intra- and post-operatively. They can be life threatening and always require immediate action. A fast differential diagnosis is vital. It is also the basis of a targeted therapy.

The ROTEM®- analysis offers reliable results within 5-10 minutes and provides critical information about the efficacy of the therapy. Additionally, the ROTEM®- analysis enables continuous monitoring and therefore any therapy changes as needed.

ROTEM® facilitates the management of bleeding episodes as they can occur in major surgery, such as:

- Cardiac and vascular surgery
- Organ transplantation
- Trauma
- Abdominal surgery
- Tumor removal
- Orthopedic
- Obstetrics
and others.

The result is a significantly improved patient outcome and lower healthcare cost per episode with subsequent cost savings benefit.

The complete ROTEM® system with ROTEM® delta and ROTEM® platelet can be performed at the patient’s point of care and provides a coagulation status overview within 10 minutes of providing information on:

- Requirement for factor, fibrinogen or platelet substitution
- Detection of platelet function and aggregation
- Hyperfibrinolysis
- Extent of dilutional coagulopathy
- Heparin and protamin dosage monitoring
Proven technologies in one system providing flexible solutions for whole blood testing.

- Single use reagents for fast and reliable results
- Automated pipette for standardised volumes
- Easy operation via touch screen
- Graphical, step-by-step instruction that simplify the test performance
- Integrated learn programme with treatment algorithms and case reports from experts
- Integrated troubleshooting for fast help
Fast therapeutic decisions.

ROTEM® analysis gives results that can guide optimal treatment and monitors the success of the treatment within minutes.

- First results are available within 5 to 10 minutes
- 6 channels: differential diagnosis of coagulopathies
- Simplified interpretation of results via colour coded TEMograms/
  aggregation graphs and highlighted abnormal parameter results
- Easy therapeutic control using previous patient results as overlays
- Fast interpretation by overlay of standard curves over running results
- ROTEM® Data solutions enabled by HIS/LIS connection for
  comprehensive data transfer
- Mobile use via the ROTEM® trolley

**ROTEM® analysis**

- **CT**: Clotting time
- **CFT**: Clot formation time
- **A10**: Amplitude 10 min. after CT
- **MCF**: Maximum clot firmness
- **LI30**: Lysis index 30 min. after CT
- **ML**: Maximum Lysis

- **A6**: Amplitude 6 min
- **MS**: Maximum slope
- **AUC**: Area under the curve

**TEMograms and aggregation curves of the 6 channels**
The ROTEM® delta haemostasis analyser measures kinetic changes of the clot elasticity of whole blood samples. It allows quantitative and qualitative assessment by measuring different parameters of the clot status of the blood sample. A comprehensive set of assays permits a differential diagnosis.

The ROTEM® delta features:
- Instrument handling in a busy operating area enabled by the ball bearing stabilised technology of the ROTEM® thromboelastometry
- Differential diagnosis by the combination of up to 8 different assays
- The barcode scanner prevents the use of wrong or expired reagents
- Quality controls: ROTROL N (Level I) and ROTROL P (Level II)
- Simple patient-ID search function for fast and safe real time data transmission

**ROTEM® delta comprehensive reagent portfolio**

<table>
<thead>
<tr>
<th>Liquid reagents</th>
<th>in-tem®</th>
<th>r ex-tem®</th>
<th>fib-tem®</th>
<th>ap-tem®/t ap-tem®</th>
<th>hep-tem®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single use reagents</td>
<td>in-tem® S</td>
<td>ex-tem® S</td>
<td>fib-tem® S</td>
<td>ap-tem® S</td>
<td>hep-tem® S</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Reagent</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>in-tem®</td>
<td>Fast assessment of clot formation, fibrin polymerization and fibrinolysis via the intrinsic pathway</td>
</tr>
<tr>
<td>ex-tem®</td>
<td>Fast assessment of clot formation, fibrin polymerization and fibrinolysis via the extrinsic pathway</td>
</tr>
<tr>
<td>fib-tem®</td>
<td>ROTEM® analysis without platelets; qualitative assessment of fibrinogen status</td>
</tr>
<tr>
<td>ap-tem®</td>
<td>In-vitro fibrinolysis inhibition; assessment of the possible effect of antifibrinolytic drugs (compared to EXTEM)</td>
</tr>
<tr>
<td>hep-tem®</td>
<td>Specific detection of heparin when compared with INTEM via heparin neutralisation</td>
</tr>
</tbody>
</table>

**ROTEM® delta technology**

- Oscillating axis (± 4.75°)
- Counterforce spring
- Mirror
- LED light source
- Detector
- Ball bearing
- Data processor
- Sensor pin
- Cuvette and sample
- Temperature controlled cuvette holder
- Clot formation
The ROTEM® platelet measures platelet aggregation in whole blood samples using impedance aggregometry. The device is run in conjunction with the ROTEM® delta, and is compatible with all existing ROTEM® delta models with serial numbers >2000.

The ROTEM® platelet features:
- Dedicated single use cuvettes with electrodes
- 2 channels, which can be used simultaneously
- 6-minute measurement time
- 3 different parameters:
  - AUC (area under the curve in Ohm*min)
  - A6 (amplitude at 6 min in Ohm)
  - MS (maximum slope of the aggregation graph in Ohm/min)

Measurements can be performed on the ROTEM® platelet device while running measurements on the ROTEM® delta system simultaneously.

**ROTEM® platelet reagent portfolio**

<table>
<thead>
<tr>
<th>Single use reagents</th>
<th>adp-tem®</th>
<th>ara-tem®</th>
<th>trap-tem®</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. for the detection of ADP receptor blockage (clopidogrel)</td>
<td>e.g. for the detection of cyclooxygenase inhibitors (Aspirin®)</td>
<td>e.g. for the detection of GP Iib/IIa receptor antagonists (abciximab)</td>
<td></td>
</tr>
</tbody>
</table>

**ROTEM® platelet detection principle**

1. Cuvette + sample
2. Temperature controlled measuring area
3. Electrodes
4. Stir bar
5. Data detection and transfer
6. Data processor
7. Aggregation of platelets


