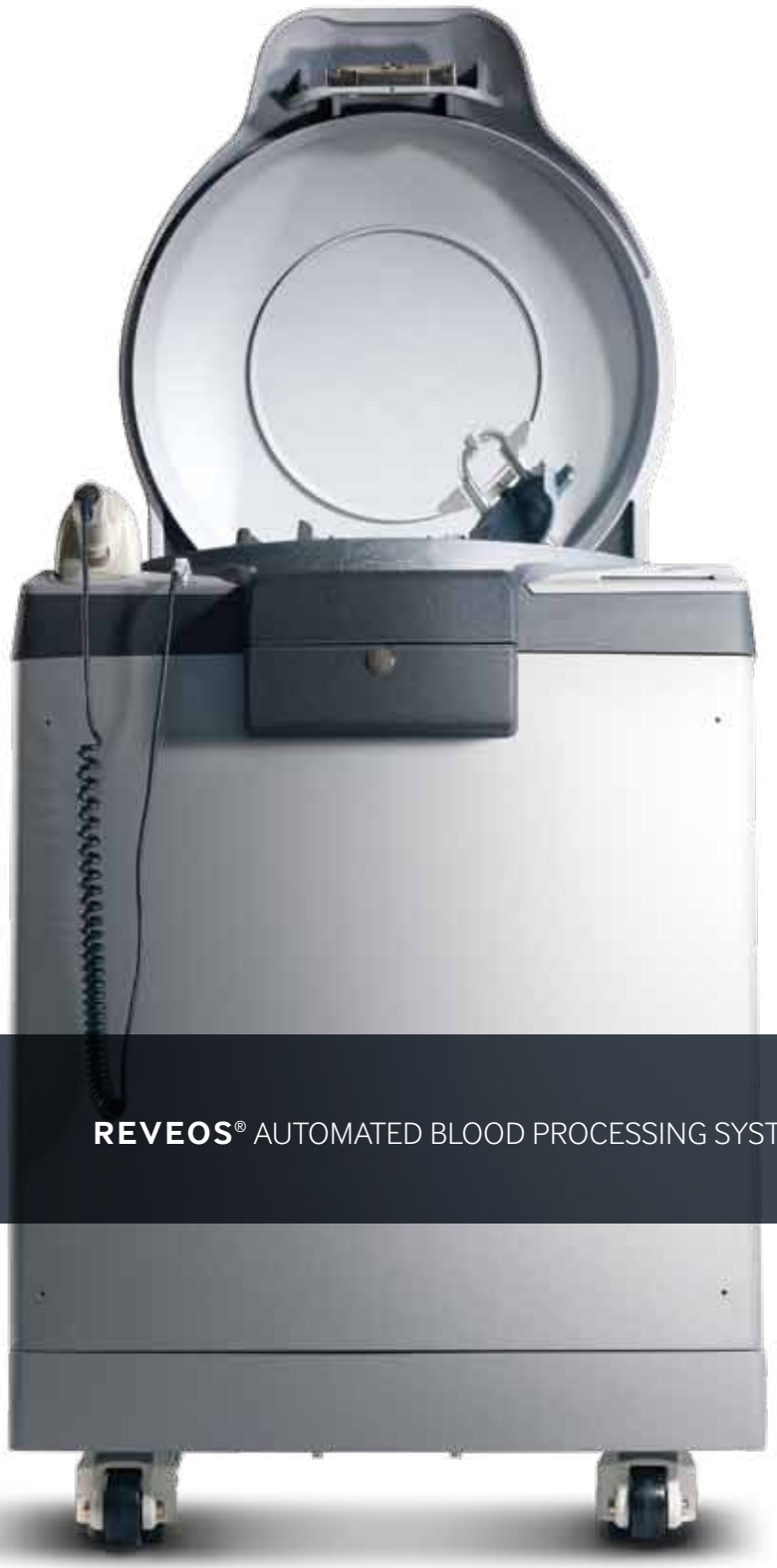
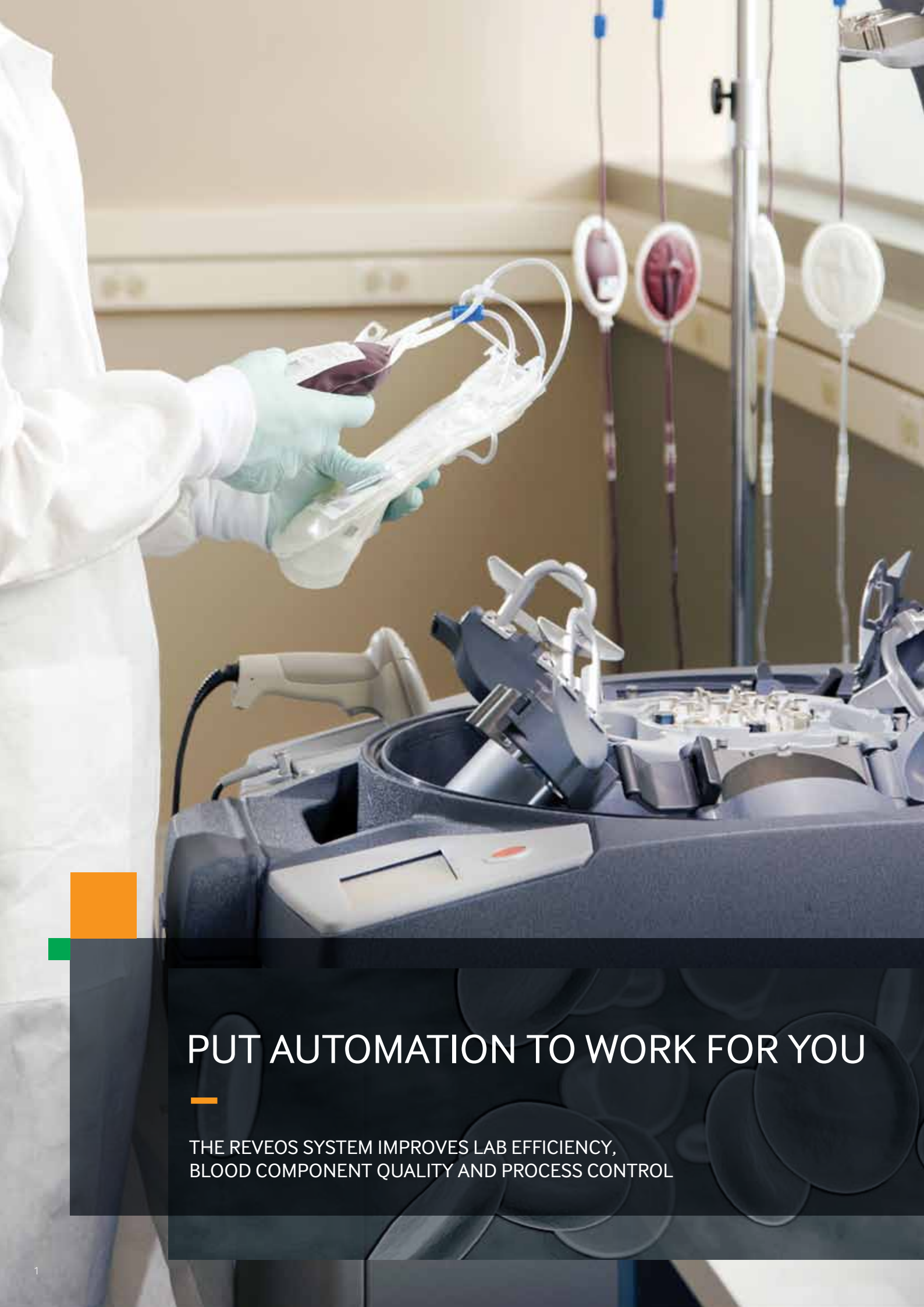


TERUMOBCT
Unlocking the Potential of Blood

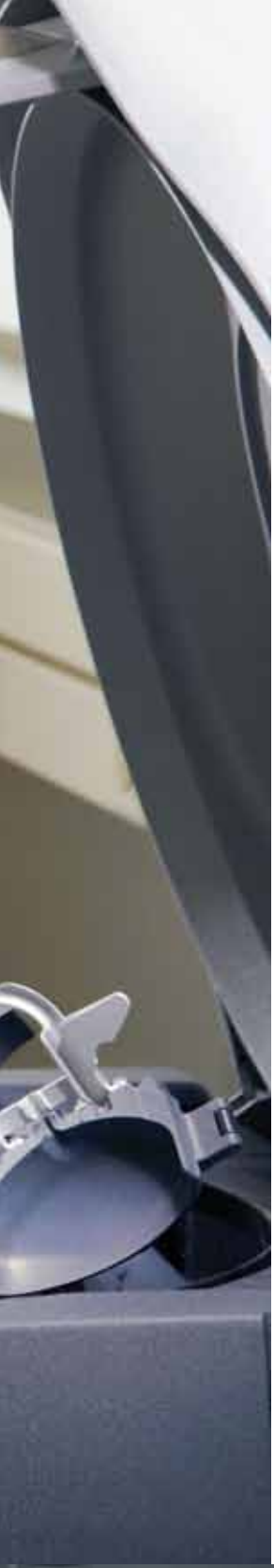
REVEOS® AUTOMATED BLOOD PROCESSING SYSTEM

AVAILABLE IN SELECT MARKETS. NOT AVAILABLE IN THE U.S.



PUT AUTOMATION TO WORK FOR YOU

THE REVEOS SYSTEM IMPROVES LAB EFFICIENCY,
BLOOD COMPONENT QUALITY AND PROCESS CONTROL



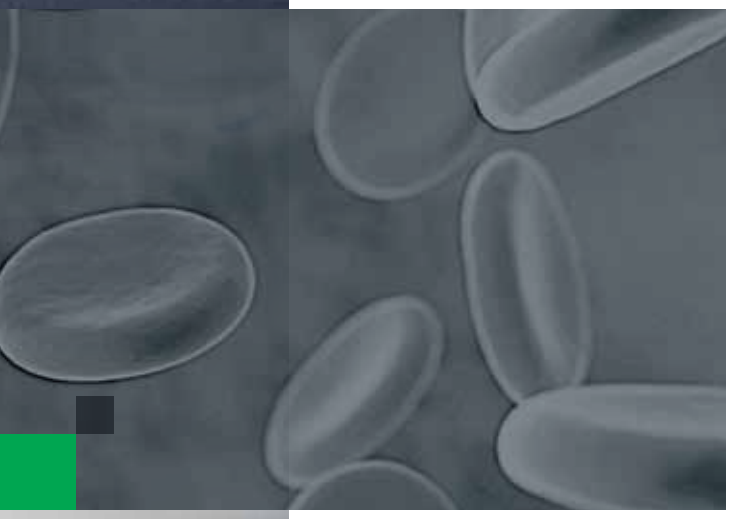
THE IMPORTANCE OF **AUTOMATION**

Traditional, manual methods of whole blood processing introduce many challenges, making it harder to contend with:

- Regulatory requirements
- Process and product control
- Staffing issues
- Recording and tracking data

THE REVEOS SYSTEM SOLVES PROBLEMS

The Reveos system was created by Terumo BCT to address these issues, greatly simplifying the platelet-rich plasma (PRP) process. With the touch of a button, you can automate and integrate the manual steps of whole blood processing and more easily meet the challenges every component lab faces.

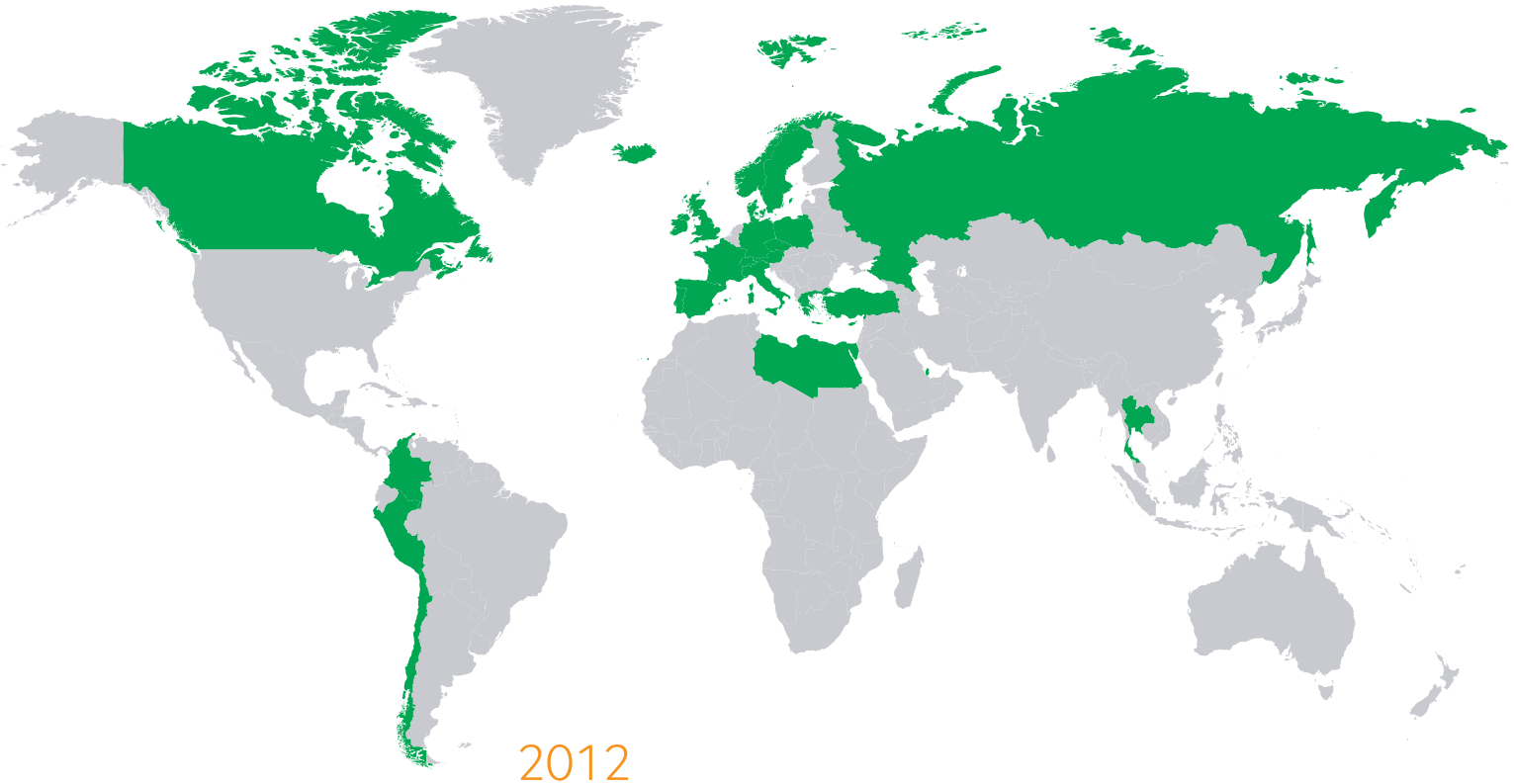


SMART LABS SEEK SMARTER SOLUTIONS

AUTOMATION IS WIDESPREAD

2002

Automation technologies not yet available



2012

Blood banks in 32 countries have adopted Terumo BCT's automation technologies

A CLEAR PATH TO
AUTOMATED BLOOD PROCESSING

While the prospect of automation may seem daunting, we have helped more than 100 customers around the world successfully upgrade their labs. And that number is growing rapidly. These blood centers are already experiencing the rewards of automation. And you could, too.

Put our knowledge and expertise to work to improve your whole blood process.

THE REVEOS PROCESS: **FOUR UNITS AT A TIME**

The Reveos system is straightforward and intuitive to operate. It automates and consolidates manual processing steps, including:

- **Balancing**
- **Centrifugation**
- **Expression**
- **Sealing**
- **Volume and platelet content determination**
- **Recording procedure and process data**

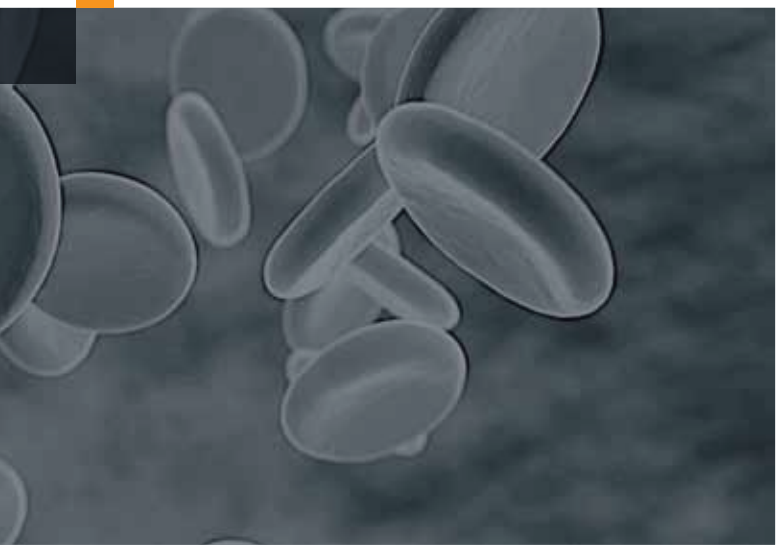
Plus, the system processes four units of whole blood at a time.

FLEXIBILITY

Use your Reveos system to produce red blood cells (RBCs), plasma and residual leukocytes (2C protocol) or to produce RBCs, plasma, platelets and residual leukocytes (3C protocol).

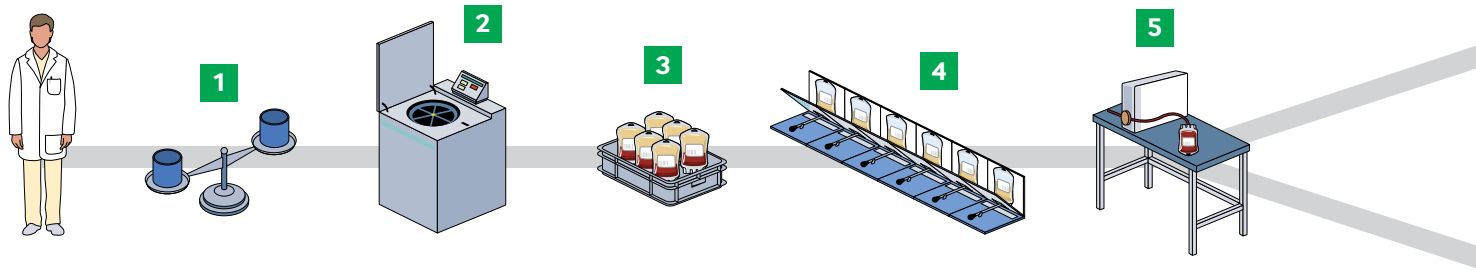
THE REVEOS SYSTEM CONSISTS OF:

- **The Reveos device**
  A self-contained, automated system that processes up to four whole blood units at a time
- **Reveos System Manager**
  An enhanced data management system
- **Cadence Data Collection System**
  An application for improved customer service
- **An integrated processing set**
  The same set is used for collection and processing



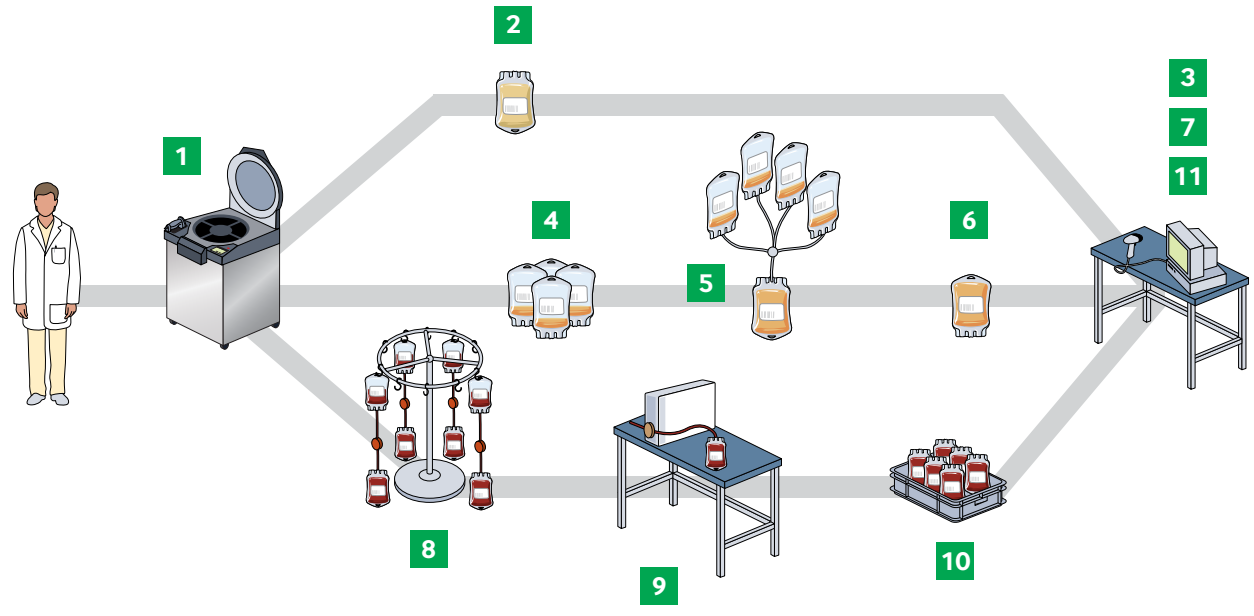
COMPARE YOUR PROCESS TO THE REVEOS PROCESS

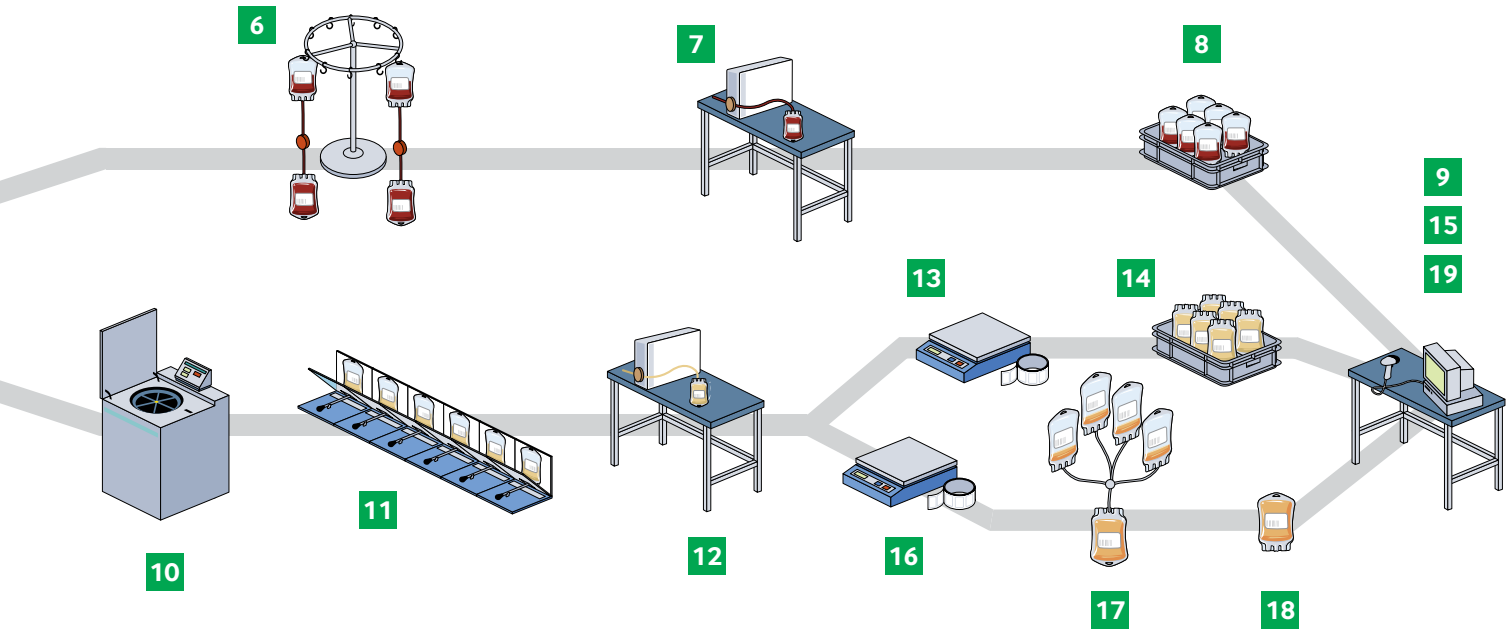
MANUAL PROCESS



1. Balance
2. Centrifuge
3. Expression-ready units
4. Express PRP from RBC concentrate
5. Seal and separate PRP and RBC units
6. Leukoreduction of RBC units
7. Seal RBC units
8. Leukoreduced RBC units ready for storage
9. Enter data; store or additionally process products
10. Centrifuge PRP units
11. Express plasma fom platelet concentrate
12. Seal and separate plasma and platelet concentrate
13. Weigh plasma
14. Plasma units
15. Enter data; store or additionally process products
16. Weigh platelet concentrate
17. Pool platelets
18. Therapeutic platelet dose
19. Enter data; store or additionally process products

REVEOS SYSTEM 3C PROTOCOL





PROCESS FOUR UNITS OF BLOOD AT ONE TIME

1. Operate Reveos system
2. Leukoreduced plasma unit
3. Enter data; store or additionally process products
4. Interim platelet unit
5. Pool platelets
6. Therapeutic platelet dose
7. Enter data; store or additionally process products
8. Leukoreduction of RBC units
9. Seal RBC units
10. Leukoreduced RBC units ready for storage
11. Enter data; store or additionally process products

THE ADVANTAGES OF THE REVEOS SYSTEM

LOOK AT WHAT THE REVEOS SYSTEM CAN DO

PRODUCE HIGHER QUALITY PRODUCTS

The Reveos system delivers precision that improves both product output and product quality.

INCREASE PRODUCT CONSISTENCY

Automation reduces the variability caused by manual operations. The Reveos system offers a level of consistency that is not currently attainable with traditional manual processing steps.

IMPROVE THROUGHPUT

THROUGHPUT POTENTIAL (RUNS/YEAR – 250 DAYS/YEAR)*				
Number of 8 hour shifts	**1 Reveos System**	**2 Reveos Systems**	**3 Reveos Systems**	**4 Reveos Systems**
1 Shift	22,000	44,000	66,000	88,000
2 Shifts	44,000	88,000	132,000	176,000
3 Shifts	66,000	132,000	198,000	264,000

**Estimated throughput numbers are based on a 20-minute cycle time (maximum 4 units per cycle) done in 8-hour shifts; 250 days of field experience and includes loading, bar coding and unloading*

OPTIMIZE WORKFLOW

With the Reveos system, you can reduce the number of steps required to process whole blood. You can also reduce the number of standard operating procedures, the amount of equipment and the hands-on time required. Staff training is also simplified.

SPACE SAVINGS	CURRENT WB TOTAL	REVEOS SYSTEM TOTAL
Square Feet	1,295	95
Square Meters	120	18
PERCENT SAVINGS	**85%**	

STAFF UTILIZATION	CURRENT	REVEOS SYSTEM	PERCENT SAVINGS
WB Processing	8	3.0	**62.5%**
Platelet Pooling	6	2.3	**61.7%**
Entire Process	14	5.3	**62.1%**

PROCESSING EQUIPMENT	CURRENT	REVEOS SYSTEM
Balances	1	0
Reveos System	0	5
Centrifuges	8	0
Expressors	20	0
Sterile Connection Devices	2	2
OrbiSac System	8	0
Balances	3	3
Multi-head Sealers	1	1
Scales	1	0
Platelet Shakers (2 Pre and 2 Post)	4	8
TOTAL	**48**	**19**
PERCENT SAVINGS	**60.4%**	

OBTAIN HIGHER YIELDS

The Reveos system may help you improve yields in several ways:

- The process is automated and consistent, resulting in fewer mistakes, fewer discarded products and less waste
- The system is highly accurate, enabling operators to obtain a higher volume of components from the same volume of whole blood
- The system is flexible and may be customized to your center's unique needs

The Platelet Yield Index (PYI) is an exclusive, innovative feature that provides the operator a prediction of the platelet yield of the processed unit. The PYI value is represented on the display screen and recorded in Reveos System Manager. The correlation of the prediction to actual yields is high.
With this information, pooled platelet yield can be optimized with less variability.

SAVE SPACE

Traditional whole blood processing requires a great deal of space. For example, to manually process 650 whole blood units per day, using two shifts and working seven days a week, you would need 120 m^2 (1,295 ft^2) of processing space.

With the Reveos system, the space needed for centrifuge preparation, centrifugation, expression, post-processing and platelet production is consolidated into a smaller space. To process one unit per minute, you need less than 14 m^2 (151 ft^2) of lab space.

REINFORCE GOOD MANUFACTURING PRACTICES (GMP)

A high degree of process control and comprehensive collection of run data reinforces GMP and compliance.

FACILITATE ADOPTION OF OTHER NEW TECHNOLOGIES

The Reveos system allows blood center staff to devote more time to other processes.

Above statements are made when compared to manual whole blood processing.

MANAGE INFORMATION WITH EASE

SOFTWARE SOLUTIONS TAKE YOUR SYSTEM FURTHER

REVEOS **SYSTEM MANAGER** (RSM)

Impeccable data management does not have to take a lot of effort. RSM is a powerful, fully integrated information management application that helps you improve process control, regulatory compliance and management report capabilities.

- Data transfer to your Reveos system allows you to customize your procedures, security settings and more
- Data transfer from your Reveos system allows you to generate valuable reports that ensure traceability and track processes, identifying areas for improvement

CURRENT CHALLENGES	RSM CAPABILITIES
Allowing flexibility and scalability of operations	Provides centralized process control and defines the workflow for your Reveos devices
Achieving regulatory compliance	Captures and stores procedure data automatically
Managing the human factor	Captures detailed information about each procedure, enabling traceability of equipment, materials, blood units and operators
Producing consistent, high-quality products	Generates a variety of data-rich reports that can be used to troubleshoot issues and identify areas for improvement of operator performance

CADENCE DATA COLLECTION SYSTEM

A service that:

- Collects data from our devices and transfers information to us over the Internet
- Allows for remote troubleshooting
- Enables the timely analysis of procedural issues, maximizing device up-time

TECHNOLOGY THAT COULD PAY FOR ITSELF

QUANTIFYING THE REVEOS SYSTEM BENEFITS

We believe that each investment you make in automated whole blood solutions should pay for itself over time. Working together, we can quantify the benefits of the Reveos system based on your lab and processes. We are here to help you make an informed decision about how to best produce consistent, high-quality products; streamline your business processes; and create value for you and your stakeholders.

A RETURN ON YOUR INVESTMENT

Like any capital investment, the Reveos system was designed to help you reduce costs and increase revenue. The Reveos device and RSM work together to bring automation and streamlined operations to your blood center.

Capital investments usually affect the cash flow statement negatively in the first year of implementation. In subsequent years, cash flow increases through an improvement in operating margin.

Most organizations depreciate assets over time. Doing so may buffer the impact of your investment on your income statement over five to 10 years. Many organizations may experience improved profitability immediately.

POSSIBLE TANGIBLE BENEFITS	POSSIBLE FINANCIAL RETURN
Decreased RBC and plasma discard rates	Net present value: >0 IRR: >10% to 20% Payback: ~2 to 5 years
Decreased platelet discard rates	
Improved labor productivity	
Better yields for platelets, plasma and RBCs	
Improvements on overhead	
Shortened training period	
Significant reduction in space requirements	

SYSTEM **SPECIFICATIONS**

DEVICE AND OPERATING ENVIRONMENT SPECIFICATIONS

SPECIFICATION TYPE	VALUE
Size (W x H x D)	68.6 cm x 100 cm x 82.6 cm (27 in x 39.4 in x 32.5 in)
Weight	295 kg (650 lb)
Humidity	10% to 80% RH non-condensing
Operating temperature	Recommended 18 °C to 27 °C (64.4 °F to 80.6 °F)
Storage temperature	0 °C to 60 °C (32 °F to 140 °F)
Pollution degree	2
Installation category	II
Environment	Indoor use only
Rated voltage	200–240 Vac (± 10%), 50/60 Hz
Rated input (typical)	1.2 kVA
Rated input (maximum)	6.0 kVA
Heat output	1 kW (3,400 Btu per hour)
Main power circuit breaker	Characteristic C, Rated 16A, 30 mA RCCD (European Union)
Power plug	IEC 60309 2P + E, 200-250 V, 50/60 Hz, 16A, IP44
Ventilation	Adequate to dissipate 1.0 KW in normal operation
Minimum clearance envelope (perimeter around the device)	15.2 cm (6 in)
Minimum floor area needed for installation (D x W)	99.1 cm x 114.3 cm (39 in x 45 in)
Noise level	<65 dBA

CALCULATE WHAT THE REVEOS SYSTEM COULD DO FOR YOU.

CONTACT YOUR TERUMO BCT REPRESENTATIVE TODAY.

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