

The big picture: cobas[®] pro integrated solutions

Advanced system training



Content Overview

- 1. Vison and strategy of **cobas® pro** integrated solutions
- 2. Portfolio segmentation today and tomorrow
- 3. System overview and comparison
- 4. Test overview and reagent carriers
- 5. Sample and system workflow

Learning Objectives

In this training you will learn to:

- Identify customer segments targeted with cobas pro integrated solutions
- Compare cobas pro integrated solutions with other Roche SWA systems
- Recognize the individual components of **cobas pro** integrated solutions, and explain how the instrument works
- Translate the features of the cobas pro integrated solutions into respective customer benefits to serve customer needs

Hover your cursor over <u>underlined</u> words to see a short definition of these specialized terms in the margin.

1. Vision and strategy of cobas pro integrated solutions

Vision

cobas pro integrated solutions represents the starting point of a new generation of Serum Work Area solutions, with a unified reagent concept and seamless integration into the Roche Integrated Core Laboratory.



Seamless integration into the Roche Integrated Core Laboratory

Strategy

PROTECT our huge existing customer base in the central laboratory. Start the effective phase-out of the more than ~15 000 instruments* of **cobas** 6000 analyzer series in the markets around the world, as well as the small configurations of MODULAR *ANALYTICS* (>500 instruments*) and **cobas** 8000 modular analyzer series (>5,000 instruments*).

GROW our core business by effectively utilizing the increased number of available reagent positions – especially on **cobas e** 801 - and the increased productivity of **cobas pro** integrated solutions, as compared to our legacy instruments.

* Number of instruments is measured by the number of core units. Data as of year end 2019.

2. Portfolio segmentation today and tomorrow

cobas® SWA system portfolio

cobas c 513 analyzer



800 - 4000 HbA1c samples/day



800 - 4000 tests/day



cobas 8000 modular analyzer series

High to extra high volume



cobas 6000 analyzer series

Medium volume





200 - 500 samples/day



cobas 4000 analyzer series

Low volume



50 - 200 samples/day



300 - 1200 tests/day



cobas c 111 analyzer

Low volume



< 50 samples/day

< 300 tests/day



The **cobas** SWA instrument portfolio offers a solution for every laboratory from a throughput demand of 50 (c**obas c** 111 analyzer) to more than 30 000 samples / per day (**cobas** 8000 modular analyzer series). Our portfolio allows each and every customer to have a tailor-made, scalable, and cost-efficient solution.

Taking the successful **cobas** family concept as a basis, **cobas pro** integrated solutions represents the starting point of a new generation of Serum Work Area solutions, which in the future will also consist of **cobas pure** integrated solutions and **cobas** 800x*.

cobas pro integrated solutions mainly targets the current upper **cobas** 6000 segment and approximately two thirds of the **cobas** 8000 segment and will provide additional benefits including additional value-adding features like:



cobas SonicWash: a patented way to wash the sample probes on **cobas pro** integrated solutions ISE analytical unit and **cobas c** 503 analytical unit with ultrasound technology. **cobas** SonicWash will eliminate customer daily maintenance actions on the sample probe and will add an additional layer to sample integrity.



cobas AutoCal: a completely new calibration concept with the potential to eliminate up to 56%** of all calibration events in Clinical Chemistry.



Automated maintenance: a concept that automates many (previously manual) maintenance steps, significantly decreasing maintenance tasks for the operator.

*planned in the future

**for a daily routine workload, as compared to cobas 6000 <501 | 501 | 601>

SWA system portfolio segmentation

Today and tomorrow

Integration level



Throughput

* planned in the future

cobas pro integrated solutions mainly targets mid- to large-sized laboratories, including laboratory chains and university laboratories.

Customer segmentation

Single independent laboratories	Connectivity	Analyzer	
	No	cobas 4000 analyzer cobas 6000 analyzer cobas pure integrated solutions cobas pro integrated solutions cobas 800x*	
Satellite laboratories	Connectivity	Analyzer	
	No	cobas 4000 analyzer cobas pure integrated solutions	
University laboratories	Connectivity	Analyzer	
	Yes	cobas 6000 analyzer cobas pro integrated solutions cobas 8000 modular analyzer series cobas 800x*	
Laboratory chains	Connectivity	Analyzer	
	Yes	cobas pro integrated solutions cobas 8000 modular analyzer series cobas 800x*	
Blood banks	Connectivity	Analyzer	
	Yes	cobas pure integrated solutions** cobas pro integrated solutions cobas 8000 modular analyzer series cobas 800x*	

* Under development ** Under investigation

3. System overview and comparison

System overview

Like all the solutions in our existing portfolio for medium- to high-volume testing, **cobas pro** integrated solutions has a modular design in order to fit the needs of the respective laboratory.



It consists of the following components:

Sample supply unit



Integrated control unit

300 samples can be loaded or unloaded at the same time

ISE (Ion-selective electrodes) analytical unit



Has a throughput of up to **900** tests per hour for sodium, potassium, and chloride

cobas c 503 analytical unit (Clinical Chemistry)



Throughput: up to 1000 tests per hour



Reagent positions: 60

cobas e 801 analytical unit (Immunochemistry)



Throughput: up to 300 tests per hour

Reagent positions: 48

Eleven configurations of **cobas pro** integrated solutions are available.

Serum Work Area configurations

(Sample supply unit, ISE analytical unit, **cobas c** 503 analytical unit, **cobas e** 801 analytical unit)



ISE | 503 | 801 Throughput: Up to 2200 tests per hour



ISE | 503 | 801 | 801 **Throughput:** Up to 2500 tests per hour



ISE | 503 | 801 | 801 | 801 **Throughput:** Up to 2800 tests per hour



ISE | 503 | ISE | 503 | 801 **Throughput:** Up to 4100 tests per hour



ISE | 503 | ISE | 503 | 801 | 801 **Throughput:** Up to 4400 tests per hour

Clinical Chemistry configurations

(Sample supply unit, ISE analytical unit, cobas c 503 analytical unit)



ISE | 503 **Throughput:** Up to 1900 tests per hour



ISE | 503 | ISE | 503 **Throughput:** Up to 3800 tests per hour

Immunochemistry configurations

(Sample supply unit, cobas e 801 analytical unit)

801 **Throughput:** Up to 300 tests per hour

801 | 801 **Throughput:** Up to 600 tests per hour

801 | 801 | 801 **Throughput:** Up to 900 tests per hour

801 | 801 | 801 | 801 **Throughput:** Up to 1200 tests per hour









cobas pro integrated solutions: comparison of selected features with cobas 6000 and cobas 8000

cobas pro integrated solutions vs cobas 6000 analyzer series





	cobas 6000 a	nalyzer series	cobas pro integrated solutions		
	c 501	e 601	c 503	e 801	
Throughput	600	170	1000	300	
No. of reagent channels	60	25	60	48	
Reagent carrier	c pack	e pack	c pack green	e pack green	
Connectivity level	SWA/ Unidirectional TLA	SWA/ Unidirectional TLA	SWA/ Bidirectional TLA	SWA/ Bidirectional TLA	
Footprint/m ²	1.9	1.9	3.4	2.9	
	(<501 601> 3.08)		(<503 801> 5.1)		

In comparison to **cobas** 6000 analyzer series, **cobas pro** integrated solutions offers a higher throughput on both Clinical Chemistry and Immunochemistry testing, as well as a higher number of reagent positions for immunochemistry tests and configurations. Additionally, customers can benefit from the advantages of the new reagent carriers: **cobas c** pack green and **cobas e** pack green. Moreover, **cobas pro** integrated solutions can be connected bidirectionally to automation solutions for a seamless integration into the Roche Integrated Core Laboratory.

cobas pro integrated solutions vs cobas 8000 modular analyzer series



	cobas 8000 modular analyzer series				cobas pro integrated solutions	
	c 502	c 701/ 702	e 602	e 801	c 503	e 801
Throughput	600	2000	170	300	1000	300
No. of reagent channels	60	70	25	48	60	48
Reagent carrier	c pack	c pack large	e pack	e pack green	c pack green	c pack green
Connectivity level	SWA/ Bi- directional TLA	SWA/ Bi- directional TLA	SWA/ Bi- directional TLA	SWA/ Bi- directional TLA	SWA/ Bi- directional TLA	SWA/ Bi- directional TLA
Footprint/m ²	2.87	2.87	2.75	2.87	3.4	2.9
	(<502 602> 4.46)			(<503 801> 5.1)		

In comparison to the **cobas** 8000 modular analyzer series, the **cobas pro** integrated solutions Clinical Chemistry throughput is higher compared to the **cobas c** 502, but lower compared to the **cobas c** 701/702 analytical units.

The **cobas pro** integrated solutions delivers the same connectivity options to laboratory automation solutions as the **cobas** 8000. However, the **cobas** 8000 offers higher scalability, as it can include a high-volume clinical chemistry analytical unit with the **cobas c** 701 and 702.

4. Test overview and reagent carrier

Comprehensive test menu

Roche comprehensive clinical chemistry/HIA portfolio



Roche comprehensive immunoassay portfolio



A very broad test menu can be used on the **cobas pro** integrated solutions – providing the opportunity to consolidate even more tests on one platform and with that, decrease the need of having additional routine analyzers in the laboratory. Consequently, fewer systems need to be installed, maintained, operated, and serviced, which ultimately enhances cost efficiency for laboratories. For example, having only 1 instrument from 1 supplier leads to minimized logistical efforts when it comes to sample distribution, reagent loading, and overall material handling.

The menu does not only comprise of routine markers but also specialty testing and innovative markers. In addition to that, a pipeline of new markers is in development and will further meet unmet medical needs.

Reagent carriers for cobas pro integrated solutions

Roche relies on a reagent concept that is very easy to use. The **cobas pro** reagent carriers, **cobas c** pack green and **cobas e** pack green, contain all necessary reagents in one unit and can be placed directly from the fridge into the cooled reagent compartment of the analytical units.

cobas c pack



*in development

cobas c pack green is the evolution of the existing cobas c pack and cobas c pack large and offers additional customer benefits as follows:

 Pierceable caps enable reagents to remain closed on the analyzer. This reduces reagent exposure to oxygen and leads to a high on-board stability of up to 6 months.



- With cobas c pack green, pipetting volumes have been decreased down to 1 µL which further reduces the total reaction volume on the analyzer.
- cobas c pack green offers more tests per pack. Consequently, fewer packs are needed which frees up more reagent positions on the analytical unit.
- Each cobas c pack green is equipped with state-of-the-art RFID technology to provide high safety and comply with traceability requirements.
- Development channels will also be offered on **cobas c** 503 analytical unit.

cobas e pack



cobas e pack green delivers the following benefits:

• **cobas e** packs green remain closed when they are onboard, being opened only shortly before each pipetting and closed immediately after. Therefore, the reagent onboard stability reaches up to 4 months.



- With **cobas e** pack green, reagent pipetting volumes have been reduced (compared to **cobas e** pack). This further reduces the total reaction volume on the analyzer.
- cobas e pack green offers more tests per pack compared to cobas e pack. Additionally, for many tests, two pack sizes are offered. Consequently, fewer packs of a test are needed on the reagent rotor, which frees up more reagent positions on the analytical unit.
- cobas e pack green uses RFID technology to provide high safety and comply with traceability requirements.

In summary, **cobas c** pack green and **cobas e** pack green lead to a more efficient and economical use of reagents, which can have an overall impact on the laboratory. Due to the increased onboard stability and higher pack sizes, significantly fewer packs will be needed in order to cover the daily routine. This leads to a highly efficient reagent usage, less hands-on time (e.g. for reagent loading and unloading events, but also ordering, handling etc.), and a reduction in both waste and space. Additionally, the insourcing of low volume parameters may become economically attractive.

Reagent management

Reagent management can use up a lot of time in a laboratory. Ready to use reagents save time and effort:



Additionally, a consumption-based loading list gives guidance on what needs to be loaded in order for the system to operate without interruption for the next 24 hours. And if something gets forgotten, it can be loaded at any time of the day. This counts for reagents, system reagents, wash solutions, and waste. Fast and convenient reagent management saves time and increases efficiency.

5. Sample and system workflow

Efficient sample management

In order to be more productive, the laboratory needs to manage the sample flow efficiently.

For **cobas pro** integrated solutions there is an improvement in cycle time for both Clinical Chemistry and Immunochemistry with them reaching a throughput of:





In total, up to 4400 tests per hour can be achieved with a **cobas pro** integrated solutions < ISE | 503 | ISE | 503 | 801 | 801 > configuration, perfectly synchronized to deliver maximum efficiency.

Efficient sample management is always a combination of the throughput of the analytical units and an intelligent sample transportation. Even the highest throughput of an analyzer can lead to insufficient turnaround times if sample transportation is managed poorly. Let's have a look at an example how a routine sample is routed through the **cobas pro** integrated solutions:



- The sample is loaded or comes directly from the automation line.
- Then, the barcode is scanned. With this information, **cobas pro** integrated solutions calculates the most efficient route for the sample to travel.
- There are fast transportation and return lines, independent processing lines within each unit, and sample buffer in each analytical unit.
- This approach provides a laboratory with a solution that does not require any additional laboratory automation simply to combine Clinical Chemistry and Immunochemistry testing. Faster turnaround time results in higher throughput and greater productivity for the laboratory.

cobas pro integrated solutions can be up to 3¹/₄ hours faster, compared to an existing **cobas** 6000 configuration*:

cobas 6000 analyzer series < 501 | 501 | 601 >: 10 hours 42 minutes **cobas pro** integrated solutions < 503 | 801 > : 7 hours

*result of a maximum throughput simulation of a real-world customer profile with roughly 8,000 requests (1,400 ISE, 5,600 Clinical Chemistry, 1,000 Immunochemistry requests)

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