ELGA VEOLIA

MEDICA®

Water purification systems for clinical diagnostics

MEDICA

"Water is all we do. We *know* water."

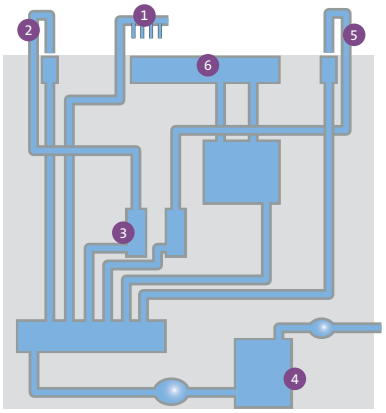
We understand it is critical for clinical analyzers to receive a constant and reliable supply of compliant water to attain accurate and reproducible diagnostic test results. Water quality that is below accepted standards affects the chemistry of the tests and the general operation of the analyzer. This reduces the accuracy of the results and increases calibration times and reagent costs.

At ELGA we have significant experience gained from 75 years of innovating water purification technologies and working in partnership with major clinical diagnostics companies.
The MEDICA range is unrivaled.

Our reliable, compact water purification systems with in-built wrap-around reservoirs occupy a minimal amount of precious lab space. Constructed from the highest quality components, the MEDICA range ensures bacterial control and optimal purity, as well as an uninterrupted workflow. Built-in technology results in predictable, low consumable and running costs with the highest water quality. All MEDICA units have a bypass loop which continues to provide compliant water to the analyzer in emergency situations.

Water is vital to many different stages of the clinical analyzer process

Purified water is used as a zero/baseline standard in clinical chemistry tests and if the levels of certain ions (e.g. Ca^{2+}, Mg^{2+}, PO_4^{3-}, HCO_3^-) are not optimal then this will affect the calibration stability and reduce assay sensitivity. Likewise, bacterial by-products, most notably alkaline phosphatase, can interfere with enzyme-based immunoassays.



Diagrammatic view of how purified water is used in a clinical analyzer

1 Cuvette wash station
Consistent high quality water for effective cuvette washing, eliminating carry over and contamination

2 Sample probe and wash station
Consistent high quality water increases calibration stability and eliminates sample to sample cross contamination

3 Pipetting Syringes
High quality particle free water for more accurate and precise pipetting of both sample and reagent

4 Internal reservoir
UV and 0.2 micron filter for bacterial and particle control, reducing bacterial contamination

5 Reagent probe and wash station
Consistent high quality and bacterial free water delivers longer reagent stability and eliminates reagent to reagent contamination

6 Incubator bath
Bacteria and particle free water for accurate and precise photometric readings

MEDICA product finder

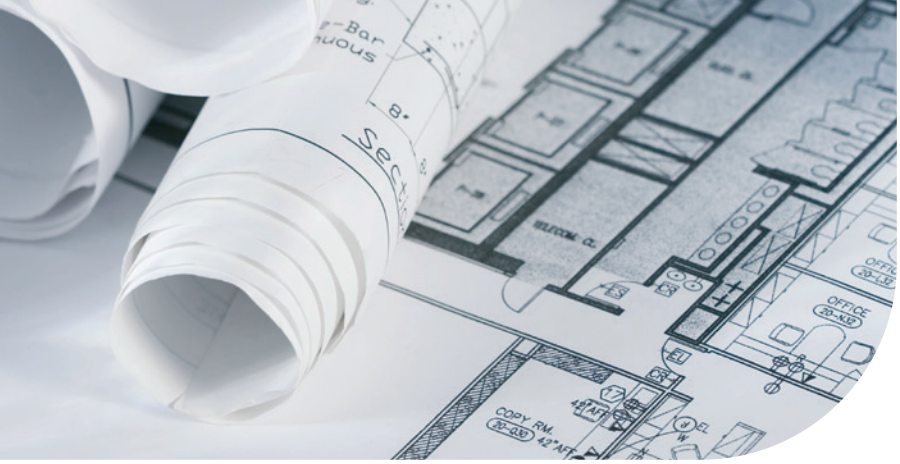
Matching systems to clinical analyzers

Supporting you all the way

This brochure outlines the key features in our MEDICA product range. The systems are designed to provide water to clinical analyzers specified to Clinical Laboratory Reagent Water (CLRW) standard (formally Clinical Laboratory Standards Institute Type 1). Whether you have access to tap or partially purified water, or need to feed analyzers on a small or large scale, ELGA has the system for you. To help you choose the system that is most suited to your clinical analyzer needs, we have developed the MEDICA product finder. Furthermore, our team of technical and application specialists are always available to answer any questions, as well as provide friendly, expert advice in choosing the most suitable water purification systems.

	MEDICA R&D (pages 5 - 6)	MEDICA EDI 15/30 (page 7 - 8)	MEDICA PRO EDI 60/120 (pages 9 -10)	MEDICA Pro-R/RE 60/120 (pages 11-12)	MEDICA-R200 (Page 14)	MEDICA Pro LPS (page 13)
Water quality* MΩ-cm	CLRW >10	CLRW >10	CLRW >10	CLRW >10	CLRW >10	CLRW >10
Water quality CFU/ml	Bacteria <1	Bacteria <1	Bacteria <1	Bacteria <1	Bacteria <10	Bacteria <1
Maximum delivery rate	1.8 l/m	1.5 l/m	4 l/m	4 l/m	21 l/m	4 l/m
Typical applications	Single or multiple clinical analyzers requiring low volumes of water	Single or multiple clinical analyzers requiring low volumes of water	Single or multiple clinical analyzers Feed loop up to 36m dependent on pipework size	Single or multiple clinical analyzers Feed loop up to 50m dependent on pipework size	Multiple clinical analyzers Automated track Ring main up to 100m	Single or multiple clinical analyzers Feed loop up to 50m dependent on pipework size. Fed from an existing RO or DI ring main

* For more information on applications and scientific water standards see our education guidebook "The Pure LabWater Guide". A free copy is available at www.elgalabwater.com



Worldwide service and support

For total confidence in your MEDICA systems

Every MEDICA system comes complete with one extra feature – first class service and support wherever you are in the world. ELGA has installed thousands of systems globally, and our service engineers will apply their expertise to the installation and maintenance of your water purification systems in compliance with all the relevant codes. Furthermore, for complete peace of mind, your MEDICA system is provided with unparalled service support. This means maximum uptime for the clinical analyzer system, which must be operational every day of the year.

Our ELGA team works together with project managers, installation engineers, facilities managers, and clinical scientists to provide help and expertise at all stages.

Prior to installation we will perform a site survey and assess a wide range of parameters that include:

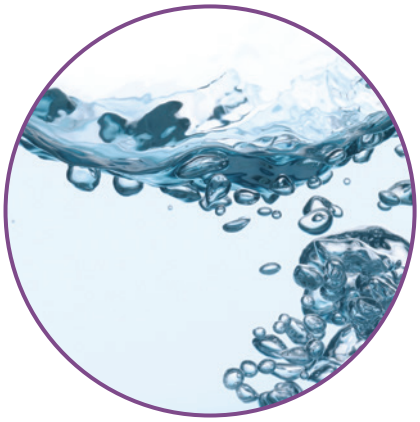
- Specific analyzer applications
- Feedwater quality – initially assessed with the ELGA LabWater water analysis kit
- Required range of water qualities and compliancy
- Volume of water needed (i.e. peak demand and normal usage per day)
- Space availability
- Budget

After our site survey we will be able to recommend the best MEDICA product for your clinical analyzer application. In addition to providing you with a cost for purchase, we will provide the cost of ownership throughout the life of the product, giving you a predictable budget. All of our MEDICA products are produced as modular units, giving faster installation times, helping to reduce costs.

After commissioning and installation our ongoing service and support will ensure that your systems are running optimally.

Pre-installation support

Whether you require purification systems that feed a single small analyzer, a large analyzer, or even multiple independent analyzers throughout an entire building, we have provided solutions that have met all specified clinical analyzer requirements economically, and within budget.



Service excellence

- We aim to provide a first-time-fix service
- Preventative maintenance contracts are structured to match your precise needs, to minimize interruptions to your workflow
- All our calibration equipment is maintained to traceable standards and operated by fully trained service technicians, ensuring the water quality

Training

- "Hands on" operation training is arranged on or off site to ensure optimal system performance and minimize the risk of downtime

Technical assistance

- Our specialized local team will ensure you find the perfect product to match both your budget and applications
- Our dedicated local help desk is always available to provide advice, troubleshooting and parts identification

The first step to Pure Water: The ELGA LabWater water analysis kit

An informed start for a streamlined solution. At ELGA we do not speculate or work on assumptions about your water quality. On our first visit to your laboratory we will perform an on-site test that analyzes your feed water quality. Armed with data about your laboratory's water quality, required applications, lab design and budget, our team will deliver an informed proposal about the best water purification solutions to suit your needs.

"The high purity solution for single analyzers"

MEDICA-R and MEDICA-D

Reliable and economical supply for low usage

The MEDICA solution for overcoming your water purification challenges

Challenge	MEDICA Solution
Operating with and adhering to a tight annual budget, you want the lowest cost of ownership and a long-serving piece of equipment	A pre-installation site survey provides realistic information on the cost of ownership resulting in no surprises. Robust deionization processes provide a constant supply of high purity water at minimal running costs
Lab or plant room space is at a premium, therefore, only a small area is available for a water purification unit	Built-in wrap-around 25 liter reservoir contributes to the smallest footprint for this water specification. This flexibility allows units to be positioned either under or on top of a bench, or mounted on the wall
You need reliability and ease-of-use, while demanding schedules limit the time you can spend on water unit maintenance	MEDICA systems self monitor during operation and exhaustion of consumables is indicated by software on an easy-to-read display
Microbial and inorganic specifications consistently meet the CLRW standard and bacteria specification	Bacterial specification is ensured with purified water recirculating throughout all the purification processes. Combined with an easy sanitization system

Designed to supply CLRW grade water to a single analyzer

When high purity water is required in low volumes for a single analyzer, the MEDICA-R and -D offer a range of systems at an undemanding cost of ownership.

Common applications:

- Single clinical analyzers requiring up to 7–15 liters/hr
- Single clinical analyzers requiring up to 1.8 liters/min instantaneous demand of CLRW grade water

MEDICA-R

The low-usage option for tap water feed

A compact, dedicated unit providing CLRW grade water, the MEDICA-R is an ideal choice for use with a single chemistry or immunoassay clinical analyzer. Two models are available providing either 7 or 15 liters/hr, and facilitating an instantaneous demand of up to 1.8 liters/min from tap water feed.

MEDICA-D

Low-usage option to meet dissolved oxygen specification

The MEDICA-D shares the same features as the MEDICA-R, providing CLRW grade water for single clinical analyzers. In addition, the MEDICA-D incorporates a deaeration membrane, providing a reliable dissolved oxygen specification that is required by some clinical analyzers. This product is also available in two models providing either 7 or 15 liters/hr.

MEDICA -R and -D

1 **Easy to operate**

2 **Sanitization**
- Designed to run quickly and easily

3 **Integral 0.2 µm ultra microfilter**
- Essential to meet CLRW particulate specification

4 **Fully recirculating UV**
- Ensures the highest microbial quality
- Avoids bacterial alkaline phosphatase

5 **Built in recirculation and distribution pump**
- Ensures the quality of the water by recirculating it through purification technologies

6 **Optional degassing system**
- Maintains dissolved oxygen specification (required by some analyzers)

"High purity to single analyzers with more predictable running costs"

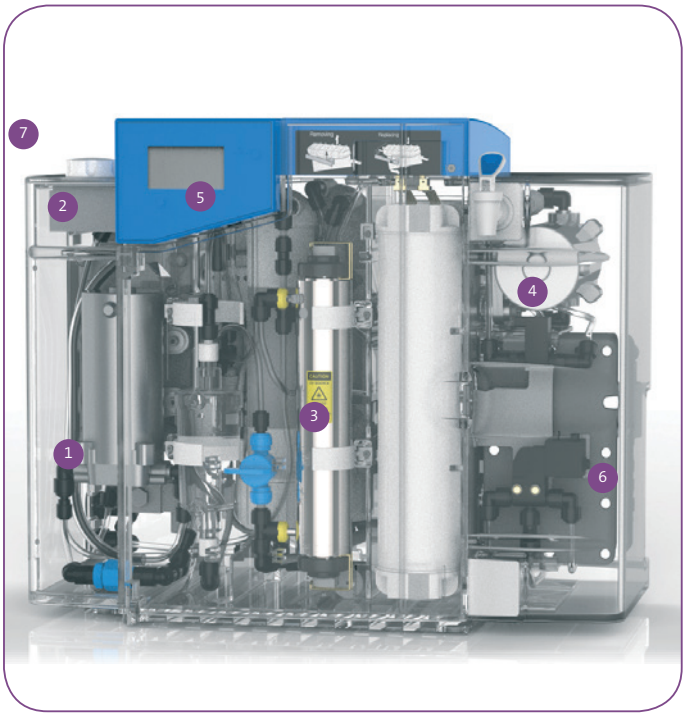
MEDICA EDI 15/30

Reliable and economical supply for analyzers which require higher volumes of water

Designed to supply CLRW grade water to a single analyzer

The MEDICA EDI 15/30 is the ideal system to provide predictable consumables usage, reducing the number of interventions.

1. **RO boost pump**
2. **Sanitization**
   - Designed to run quickly and easily
3. **Re-circulating UV**
   - Ensures the highest microbial quality
   - Avoids bacterial alkaline phosphatase
4. **Built-in recirculation and distribution pump**
   - Ensures the quality of stored water by recirculating it through purification technologies



5. **Easy to operate**
6. **EDI technology**
   - Can reduce the cost of ownership when high volumes of water are required
7. **External pre-treatment**

The MEDICA solution for overcoming the following challenges

Challenge	MEDICA Solution
Laboratories with high usage analyzers i.e. 24/7 operation	With its Electrodeionisation (EDI) technology, the system will require less frequent changes of deionisation (DI) packs, reducing the number of interventions
Carbon Dioxide	The optional degassing system significantly reduces CO_2 from the water, lowering the ionic load on downstream technologies
Requirement for predictable running costs	The impact of EDI technology is a lower ionic load onto the DI pack. This can significantly reduce running costs
Lab or plant room space is at a premium, therefore, only a small area is available for a water purification unit	Built-in wrap-around 25-liter reservoir contributes to the smallest footprint for this water specification. This flexibility allows units to be positioned either under or on top of a bench, or mounted on the wall
You need reliability and ease-of-use, while demanding schedules limit the time you can spend on water unit maintenance	MEDICA systems self-monitor during operation and exhaustion of consumables is indicated by software on an easy-to-read display
Microbial and inorganic performance consistently meet the CLRW standard and bacteria specification	The bacterial specification is ensured with purified water re-circulating throughout all the purification processes. Combined with an easy sanitization system
Downtime cannot be allowed for the clinical analyzer system	An emergency bypass prevents downtime by providing an uninterrupted supply of pure water to the analyzer at all times. This is backed up by ELGA's support service and 5 year pro-rata warranty on the EDI technology

Common applications:

- Single or multiple clinical analyzers requiring up to 30 liters/hr
- Single clinical analyzers requiring up to 1.5 liters/min instantaneous demand of CLRW grade water

"Predictable running costs at higher volumes"

MEDICA PRO EDI 60/120

High volume and high purity for high usage with more predictable running costs.

Designed to supply CLRW grade water to large or multiple clinical analyzers with high water demands

The MEDICA PRO EDI 60/120 is the ideal system to provide predictable consumables usage, reducing the number of interventions.

1 **Built-in variable speed recirculation pump**
- Keeps stored pure water ready for immediate delivery to analysers at up to 4 liters/min

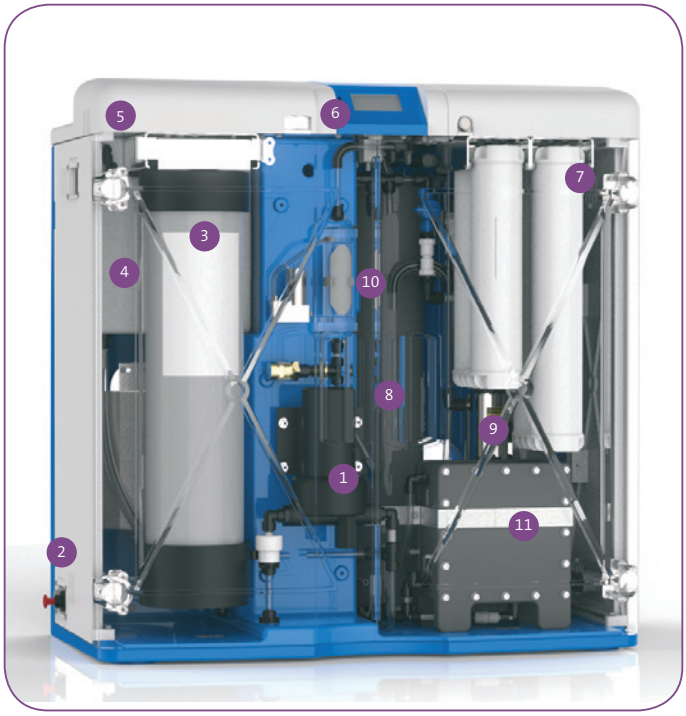
2 **Economic design**
- Unique wrap-around reservoir
- Easy access doors and castors enables the system to be installed under bench

3 **High capacity Protek Pre-treatment cartridge**
- Allows for operation on more challenging feedwater

4 **Integral break tank**
- Complies with "class A" air gap requirements.

5 **Sanitization**
- Designed to run quickly and easily

6 **Unique system operation protection**
- Automated alarms
- Access to important control systems limited by "E-key"



7 **DI Cartridge and Conditioning Cartridge**
- The Conditioning Cartridge softens the water feeding the EDI technology

8 **Integral 0.05 µm ultrafiltration filter**
- Exceeds CLRW particulate specification

9 **Re-circulating UV**
- Ensures the highest quality microbial quality
- Avoids bacterial alkaline phosphatase

10 **Economic purity**
- Degassing system increases the capacity of the DI cartridge

11 **EDI technology:**
- Can reduce the cost of ownership when high volumes of water are required

The MEDICA solution for overcoming the following challenges

Challenge	MEDICA Solution
Laboratories with high usage analysers i.e. 24/7 operation	With its Electrodeionisation (EDI) technology, the system will require less frequent changes of deionisation (DI) packs, reducing the number of interventions
Carbon Dioxide	The degassing system significantly reduces CO_2 from the water, lowering the ionic load on downstream technologies
Requirement for predictable running costs	The impact of EDI technology is a lower ionic load onto the DI pack. This can significantly reduce running costs
To avoid any interference from bacterial alkaline phosphatase or other bacterial by-products in the immunodiagnostic assays, the highest level of bacterial purity is required	Designed to recirculate purified water through DI (deionization), UV (ultraviolet) and ultramicrofiltration technologies to maintain bacterial specification
Downtime cannot be allowed for the clinical analyzer system	An emergency bypass prevents downtime by providing an uninterrupted supply of pure water to the analyzer at all times. This is backed up by ELGA's support service and 5 year pro-rata warranty on the EDI technology

Common applications:

- Large clinical analyzers or linked multiple analyzers requiring up to 120 liters/hr and an instantaneous demand of up to 4 liters/min
- Automated analyzer platforms that use a mix of technologies, e.g. combining chemistry and immunoassays

"Reliable supply for labs requiring large volumes"

MEDICA Pro-R and Pro-RE

High volume and high purity for high usage

The MEDICA solution for overcoming your water purification challenges

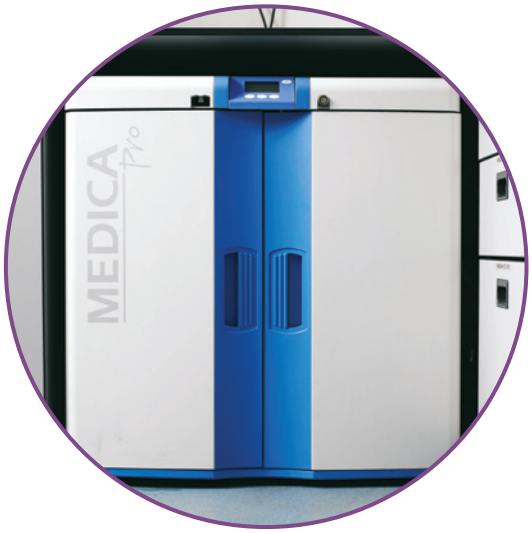
Challenge	MEDICA Solution
To avoid any interference from bacterial alkaline phosphatase or other bacterial by-products in the immunodiagnostic assays, the highest level of bacterial purity is required	Designed to recirculate purified water through DI (deionization), UV (ultraviolet) and ultramicrofiltration technologies to maintain bacterial specification
You have very limited space in your lab or plant room and may require a duty and standby arrangement of water units as a precautionary measure	The single compact design with a built-in reservoir makes the system easy to install under a bench or free standing. This means that two MEDICA Pro units may be installed in the space of one conventional system
Downtime cannot be allowed for the clinical analyzer system	An emergency bypass prevents downtime by providing an uninterrupted supply of pure water to the analyzer at all times. This is backed up with our support service
Predictable running costs are required to meet the laboratory budget	A pre-installation site survey realistically assesses the cost of ownership, while the E Cartridge degasser unit reduces the CO_2 load on the deionization pack giving predictable, low running costs

Designed to supply CLRW grade water to large or multiple clinical analyzers

When high purity water is required in high volumes for large or multiple analyzers, the MEDICA Pro range offers a choice of systems at an undemanding cost of ownership.

Common applications:

- Large clinical analyzers or linked multiple analyzers requiring up to 120 liters/hr and an instantaneous demand of up to 4 liters/min
- Automated analyzer platforms that use a mix of technologies, e.g. combining chemistry and immunoassays



MEDICA Pro range

Complete with a 50 liter, built-in wrap-around reservoir, these systems are available as 30, 60 or 120 liters/hr rates and this space saving design can be readily upgraded to higher flow rates. Long-lasting Protek pre-treatment cartridges have a high capacity adsorbant/ pre-filter that provides increased protection by minimizing contaminants, e.g. chlorine and chloramines, and can be easily installed thereby reducing maintenance time. Twin deionization cartridges ensure an instantaneous demand of up to 4 liters/min.

Pro-R

Providing pressurized feed to single or multiple analyzers requiring consistent high purity water

Pro-RE

Economically feeding single or multiple analyzers that are heavily utilized

MEDICA Pro

1 **Built in variable speed recirculation and delivery pump**
- Keeps stored pure water ready for immediate delivery to analyzers at up to 4 liters/min

2 **Economic design**
- Unique wrap-around reservoir
- Easy-access doors and castors enables the system to be installed under bench

3 **High capacity Protek Pretreatment cartridge**
- Avoids need for external filters

4 **Integral break tank**
- Complies with "class A" air gap requirements

5 **Sanitization**
- Designed to run quickly and easily

6 **Unique system operation protection**
- Automated alarms
- Access to important control systems limited by "E-key"

7 **DI cartridge**
- Optional addition for maximum delivery rate of 4 liters /min

8 **Integral 0.05 µm ultrafiltration filter**
- Exceeds CLRW particulate specification

9 **Fully recirculating UV**
- Ensures the highest microbial quality
- Avoids bacterial alkaline phosphatase

10 **Economic Purity**
- Optional degassing system further increases capacity of DI cartridge

"The cost-effective choice for labs with pre-purified water"

MEDICA Pro-LPS

The MEDICA solution for overcoming your water purification challenges

Challenge	MEDICA Solution
Keeping costs reduced by purifying existing RO (Reverse Osmosis) or DI (deionized) water to CLRW specification for clinical chemistry and immunoassay analyzers	A single platform with two integrated DI cartridges that contain a high performance ion exchange media for delivering the required grade of CLRW water continuously at 4 liters/min
You need to ensure that water quality specification is met using an existing central RO supply	Compact size ensures units can be installed close to the clinical analyzers, enabling you to control water quality locally

Quality assured

Our commitment to the highest quality control processes guarantees reliability and compliance with both international, environmental and user organization standards. Designed and manufactured under an ISO9001:2000 total quality system. Tested to comply with CE, EMC, EN 61010 (UL CSA), PIRA, WEEE Directive and other standards as appropriate.

Purifying pre-treated water from a loop or central supply

Designed to supply CLRW grade water to large or multiple clinical analyzers

The MEDICA Pro-LPS is the ideal choice when high purity water is required from a pre-treated feed. Dispensing CLRW grade water at rates of up to 4 liters/min the Pro-LPS can supply a mix of clinical analyzers throughout one lab.

Common applications:

- Multiple clinical analyzers installed into a lab with an existing ring main system that is not of sufficient quality to meet CLRW specification
- Variable water specifications across a laboratory with a central system providing the general grade water and the MEDICA Pro-LPS polishes water to meet the specific specialist analyzer needs

"The compact solution for distribution loops"

MEDICA-R 200

The MEDICA solution for overcoming your water purification challenges

Challenge	MEDICA Solution
You need to avoid a complicated component installation for a large clinical analyzer ring main across two floors or a large automated clinical laboratory wishes to install a tracked automation system with multiple clinical analyzers integrated where the water system must be adjacent for operational flexibility	Designed as a single modular unit with in-built pure water storage of 350 liters, ring main pump, UV and filter technologies that are housed in a compact and aesthetic cabinet to provide a powerful multifloor ring main system of up to 100m. Quick fit connections make the system easy to install, while experience in project planning simplifies the installation, making it hassle free for you
A high instantaneous demand is required to make sure that all the analyzers on the ring main have sufficient pure water	Multiple integrated technologies are responsible for the system producing 200 liters of pure water per hour and an instantaneous delivery of up to 21 liters/min directly to the analyzers
You require CLRW grade water quality, with special emphasis on bacterial containment to satisfy the differing water specification in a mix of clinical chemistry and immunoassay analyzers	Built in recirculation through UV, filtration technologies and easy sanitization ensures optimal bacteria purity and CLRW specification are met at all times
You require a cost-effective system that covers installation, component replacement as well as maintenance, technical and service support for the whole life of the product	A pre-installation site survey provides realistic information on the cost of ownership resulting in no surprises. The Service Deionization (SDI) cylinders that contain a regenerable resin provide the maximum economy of operation with a low environmental impact

High purity water for the highest usage

Designed to supply CLRW grade water to multiple analyzers on a loop

Designed to supply up to 21 liters/min of CLRW grade water to high volume or multiple clinical analyzers on a loop, this system is easy to install, operate and sanitize, and can be customized to your requirements. The MEDICA-R 200 is a compact unit that can be positioned inside the lab.

Common applications:

- Large clinical labs with many different analyzers linked by an automated track
- A hospital lab with large standalone clinical analyzers in different labs and on different floors
- Pure water provision for other applications such as a glass washer as well as for clinical analyzers
- A laboratory with a need for a large central water system with economy of operation

The LabWater Specialists

ELGA is an integral part of Veolia, the global leader in optimized resource management. Veolia has a worldwide team of over 200,000 people and is renowned for its capabilities in providing water, waste and energy management solutions that contribute to the sustainable development of communities and industries.

The ELGA team focuses exclusively on water and its purification. It continually contributes to the unique technical and scientific applications and expertise developed for over 80 years. We are experienced in meeting the challenges that arise during the development, installation and servicing of single point-of-use water purification systems as well as large projects involving consultation with architects, consultants and clients.

Commitment to Sustainability

The ELGA products are designed to have the lowest possible impact on the environment at all stages: manufacture, in service and at end of life.

We can calculate the carbon value of all our products throughout their lifetime and we make this information available to our customers and partners.

Visit www.elgalabwater.com/sc for more details.

Contact us:

ELGA offices and distributors are located in more than 60 countries and are fully trained in all ELGA systems.

To find your nearest ELGA representative, go to www.elgalabwater.com and select your country for contact details.

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