

A large, dynamic water splash graphic is centered on the page. The splash is composed of a main, elongated, curved shape that resembles a stylized 'C' or a protective shield, with numerous smaller droplets and bubbles scattered around it. The water is depicted with high detail, showing reflections and refractions of light.

# 18.2 MΩ. cm.

**HOW YOUR LAB CAN MAKE  
ULTRAPURE WATER TOMORROW  
FOR HALF THE COST OF TODAY.**

# HOW YOUR LAB CAN MAKE ULTRAPURE WATER TOMORROW FOR HALF THE COST OF TODAY

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## CONTROLLING THE INVISIBLE COST OF ULTRAPURE WATER

Every microliter of 18.2 MΩ.cm. water your lab uses costs budget.

Here's what determines that cost:

- The purchase price of your lab water purification system.
- The ongoing cost of replacement filter cartridges.
- The volume of water your applications need.

You can't control the volume of water your application needs.

But you can control the other two. Because the 18.2 MΩ.cm., or ultrapure, or HPLC water, or whatever you want to call it - it's the same whether it comes from the biggest brand name on the planet or not.

The single best way you can control the cost of ultrapure water in your lab is to shed your brand loyalty buy based on the cost per liter of ultrapure water.  
It's a simple calculation.

- $\text{Filter capacity} / \text{filter cartridge replacement price} = \text{cost per liter of ultrapure water.}$

If you want, you can get a little more detailed by adding in the purchase price of the filtration system and its life expectancy.

But your real cost is your ongoing cost. The filter cartridges.

You can get your first quote from Yamato and compare it to other manufacturers to see if our claim of savings up to 50% is accurate.

# WHAT TYPE OF WATER DOES YOUR APPLICATION NEED?



The vernacular is different from lab to lab.

Some call it ultrapure water. Others might refer to it by application - HPLC water. Maybe reagent water or lab water.

Or you call it by brand name.

But we stick to the ASTM categories. Type I (ultrapure), Type II, Type III, Type IV.





## TYPE I ULTRAPURE WATER

Has a resistivity of more than 18.2 MΩ.cm.

Usually it's required for analytical labs - applications like:

- HPLC
- Cell or tissue culture
- GC
- Mass spectrometry

Yamato's Auto Pure [WA300 Analytical](#), [WB300 Biological](#), [WC300 Analytical Low TOC](#), and [WG300 Biological UV Sterilizer](#) series can produce ASTM Type I water at a very low cost per liter.

Most sales staff at any manufacturer can direct you to the correct system based on your application's requirements, like particulates, TOC, Rnase/Dnase, etc...



## TYPE II LAB WATER

Has resistivity of over 1 MΩ.cm.

It's cleaner than Type III water, but it's far from ultrapure.

You probably use it for applications like:

- Sample dilution
- Media preparation
- Radioimmunoassay
- Electrochemistry

It's also ideal for feeding lab instruments and clinical analyzers because of the low calcium buildup.

A system like the [Auto Still WG205](#) can produce Type II distilled water and the [Auto Pure WH201](#) can make Type II deionized water.



## TYPE III LAB WATER

Has resistivity of over 4 MΩ.cm. And it's generally produced through reverse osmosis, which removes up to 99% of contaminants.

What applications use Type III water?

- General deionization
- Humidification
- Battery water refilling
- Glassware washing and rinsing
- Hydrogen generators
- Sterilizers
- Environmental chambers
- Ultrasonic cleaners
- Chiller loops

[This Auto Pure WH201 water purification system](#) can make Type III lab water.



## TYPE IV LAB WATER

Type IV water quality has resistivity of 200 kilohm-cm and is produced through reverse osmosis like Type III water.

You'll mostly use it as feed water to a Type I or Type II lab water system. This eases the burden on your more expensive water filter cartridges, helping your lab manage the cost of creating ultrapure water for high precision applications.

The [Auto Still WA511](#), [WA711](#), or [WA731](#) all produce Type I and Type IV water (the Type IV is stored in a 100L onboard tank).

## WATER USAGE - KNOW BEFORE YOU GET A QUOTE



To get the best value for your investment, come to your manufacturer with water usage info.

1. What's your total volume of water use per day?
2. Are you using water in a continuous flow, or in large batches?
3. What is your peak daily water demand?

Sharing this water usage info with your manufacturer allows them to provide more valuable insights into appropriate models for your lab.





## WANT TO LOWER YOUR COST PER LITER FURTHER? THINK ABOUT FEED WATER QUALITY

Feed water quality matters.

We mentioned above that a prefilter can extend the life of your more expensive Type I water filter cartridges.

But it's worth saying again, because this has a noticeable impact on the life of your more valuable cartridges.

Ask your manufacturer about pretreatment options including distillation, deionization, and reverse osmosis.

## MONITORING AND TRACEABILITY

How much accountability do you need in your process?

A resistivity monitor to measure ionic purity or a total organic carbon meter to measure....total organic carbon, are more expensive features, but might be necessary for posterity in your lab.

Ask your sales rep what they can do to make it easy for you to trace and record water quality in your lab.



# EQUIPMENT CERTIFICATION AND COMPLIANCE



ISO certifications matter.

If your manufacturer doesn't have them, there's probably a reason.

What ISO certification matter?

1. ISO 9001
2. ISO 14001

And look for manufacturer-backed quality assurances.

Maybe you get a certificate from the manufacturer certifying quality, calibration, and conformity to advertised specifications.

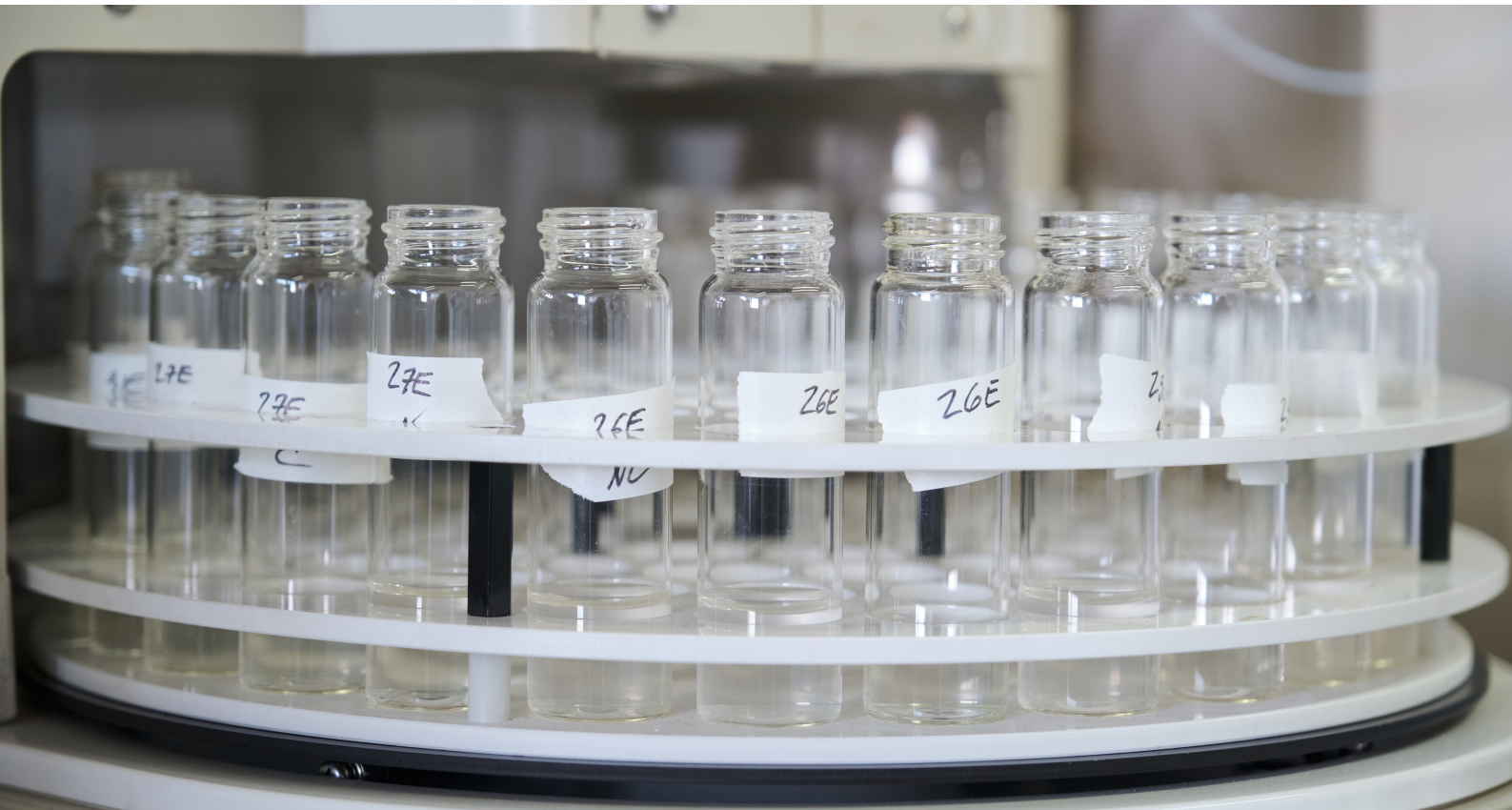
You are well within your rights to ask for CE, UL, and FCC certification information as well.

## FLOOR SPACE IS LIMITED IN MOST LABS

There are a handful of options for the placement of your water purification system.

Get a quote on a countertop system, a wall mounted system, a remote dispense system, and a free standing system.

# WHAT YOU NEED FROM YOUR INTERFACE



Convenience is the goal (after producing the water quality your lab needs).

Premium features from as few as 5 years ago are now standard on many models.

Want remote access? Data management control? Long-term digital archiving? A touchscreen interface?

Most manufacturers now offer these as standard - but bigger name manufacturers still charge premium prices for them.

Always balance your quotes from the big manufacturer with a quote from a smaller brand with less market share.

Most of the time, the smaller brand will give you better value and the same end product.

# WATER QUALITY MONITORS



Monitoring sensors are included with most Type I systems because it's important to guarantee water quality in real time with 100% accuracy.

You can review your resistivity and total contaminants in real time with most Type I systems.

As a bonus layer of security for your application, you can look for products with leak detection, an auto shutdown, or alarm.

## DOES CUSTOMER SUPPORT REALLY MATTER?

The support itself might not matter.

You have experienced scientists in your lab who can usually fix any minor problem that comes up (with water purification systems, they're rare).

But the symbolism of the support matters.

If the manufacturer offers a warranty of any kind, you can be sure they believe in the quality of the system (because no manufacturer wants to honor a warranty claim).

If support is easy to contact, and responsive, you can be sure any issue you could encounter won't result in a long stretch of system downtime.



# MAKE YAMATO YOUR FIRST QUOTE



You're going to shop around. It's how you control costs responsibly in your lab.

Yamato's lab water purification systems are up to 50% more cost-effective than any other brand on the market.

You know the other brand names. And you will see the cost those brand names incur.

The same 18.2 MΩ.cm water comes out of every system you get a quote on.

So find yourself the lowest cost per liter of ultrapure water and control costs better in your lab.

Yamato water purification systems are the secret nobody else in your lab knows about. You can be the one to uncover the secret.

Get your quote today by calling 1.800.292.6286 or emailing [customerservice@yamato-usa.com](mailto:customerservice@yamato-usa.com)