

H<sub>2</sub>O pure. Pure and ultrapure water.

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How to choose the right analytical grade water purification system for your lab?



H<sub>2</sub>O pure. Pure and ultrapure water.

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**Which standards are to be considered  
in laboratory applications?**

## Standards in the field of laboratory technology

### *American Society for Testing and Materials (ASTM)*

The ASTM D1193-06 (2011) deals with the requirements for chemical analyses and physical tests.

Type	Grade	Conductivity (μS/cm), max.	Resistance (MΩ x cm), min.	pH	TOC (μg/l), max.	Sodium (μg/l), max.	Chloride (μg/l), max.	Silicon (μg/l), max.	Bacteria (CFU/ml), max.	Endotoxins (EU/ml), max.
Ultrapure Water	I*	0.056	18.0	–	50	1	1	3	–	–
	I* A	0.056	18.0	–	50	1	1	3	10/1000	0.03
	I* B	0.056	18.0	–	50	1	1	3	10/100	0.25
	I* C	0.056	18.0	–	50	1	1	3	100/10	–
Pure water	II	1.0	1.0	–	50	5	5	3	–	–
	II A	1.0	1.0	–	50	5	5	3	10/1000	0.03
	II B	1.0	1.0	–	50	5	5	3	10/100	0.25
	II C	1.0	1.0	–	50	5	5	3	100/10	–
Pure water	III	0.25	4.0	–	200	10	10	500	–	–
	III A	0.25	4.0	–	200	10	10	500	10/1000	0.03
	III B	0.25	4.0	–	200	10	10	500	10/100	0.25
	III C	0.25	4.0	–	200	10	10	500	100/10	–
Pure water	IV	5.0	0.2	5.0–8.0	–	50	50	–	–	–
	IV A	5.0	0.2	5.0–8.0	–	50	50	–	10/1000	0.03
	IV B	5.0	0.2	5.0–8.0	–	50	50	–	10/100	0.25
	IV C	5.0	0.2	5.0–8.0	–	50	50	–	100/10	–

\* Using an appropriate 0,2μm membrane filter.

Type I  
Analytics

Type II –  
General  
laboratory  
water supply

Type III -  
Laboratory  
glassware  
washers

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**Which Systems are available?**

# H<sub>2</sub>O pure. Pure and ultrapure water.

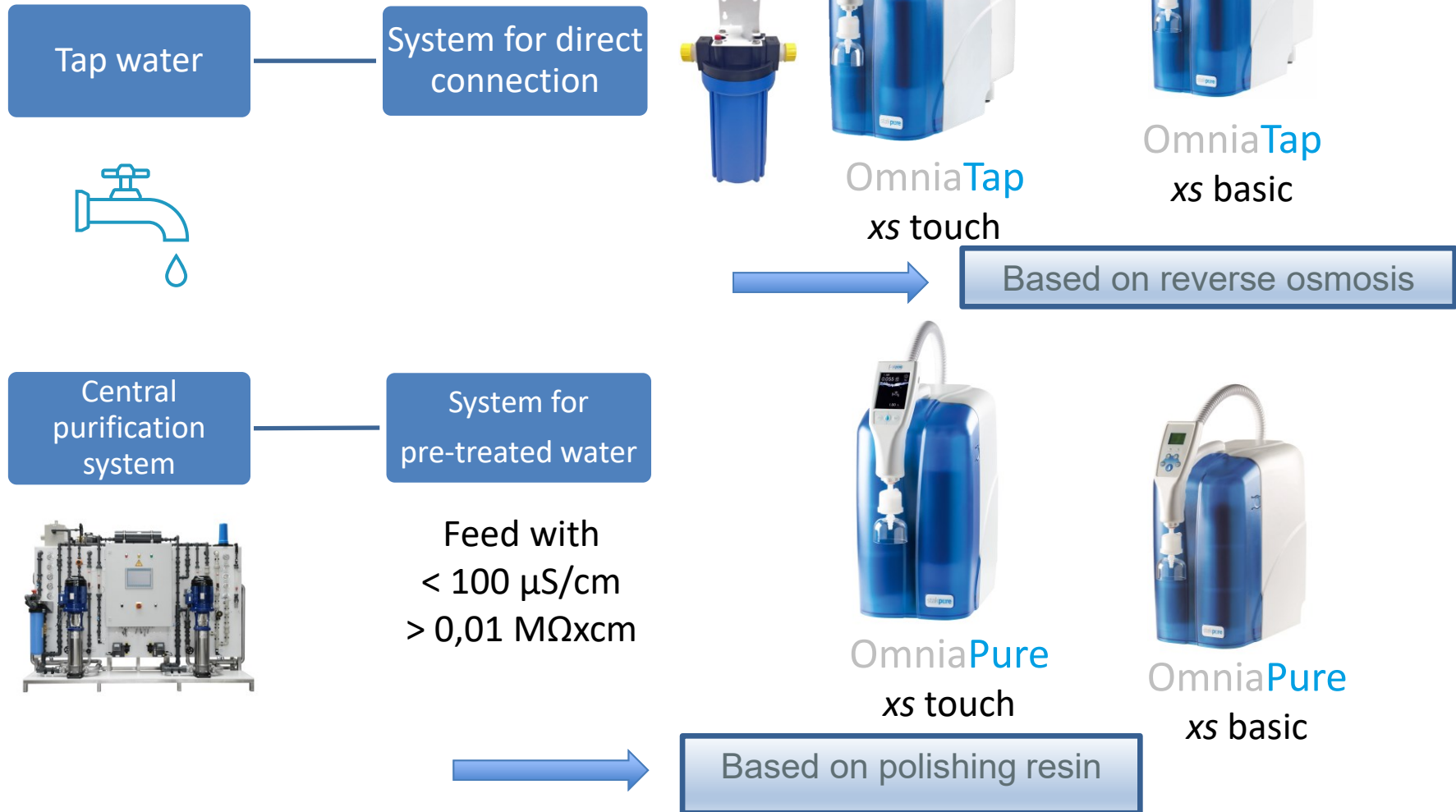
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From conventional ion exchanger systems to large central systems to supply entire laboratories



# H<sub>2</sub>O pure. Pure and ultrapure water.

## ASTM Type I - Analytics



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## ASTM Type I - Analytics

OmniaPure

OmniaTap

**xs basic**

### Applications

#### Type I (Standard)

- ✓ AAS (Atomic Absorption Spectroscopy)
- ✓ ICP + ICP-MS  
(Inductively Coupled Plasma / Mass Spectrometry)
- ✓ Buffers and media preparation



free of minerals  
0.055  $\mu\text{S}/\text{cm}$  / 18.2  $\text{M}\Omega\cdot\text{cm}$

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## ASTM Type I - Analytics

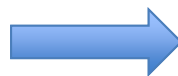
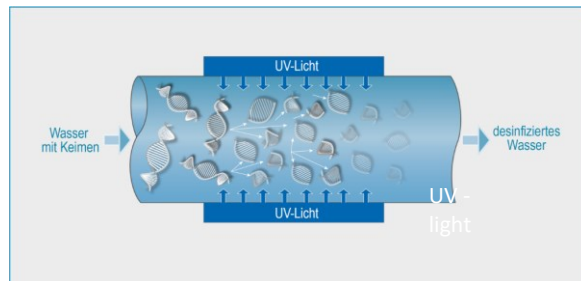
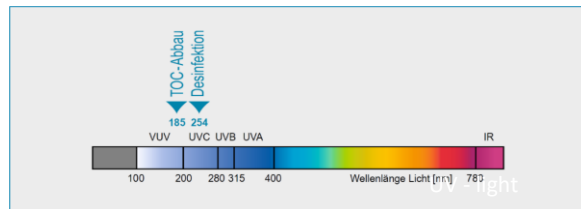


OmniaPure      OmniaTap  
xs basic **UV** / xs touch **UV-TOC**

### Applications

#### Type I (low TOC)

- ✓ HPLC  
(High Performance Liquid Chromatography)
- ✓ LC-MS  
(Liquid Chromatography-Mass Spectrometry)
- ✓ TOC analysis



Sterile - TOC 1-5 ppb



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## ASTM Type I - Analytics

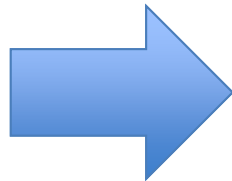
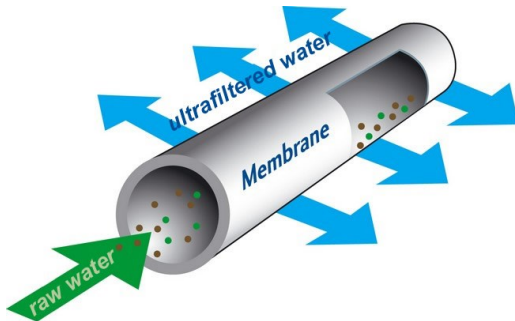


OmniaPure      OmniaTap  
xs touch UV-TOC/UF

### Applications

#### Type I (low TOC + low endotoxins)

- ✓ Life science
- ✓ Molecular and microbiology
- ✓ Cell culture media



Endotoxins 0.001 EU/ml  
RNase < 0.01 ng/ml  
DNase < 4 pg/μl

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## Type I + II – Combined solutions

### Type I + II



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## Type II - General laboratory water supply

### Type II

- ✓ Reagent preparation + sample dilution
- ✓ Pathology + Histology
- ✓ Laboratory autoclave feeding
- ✓ General chemistry



OmniaTap  
Type II



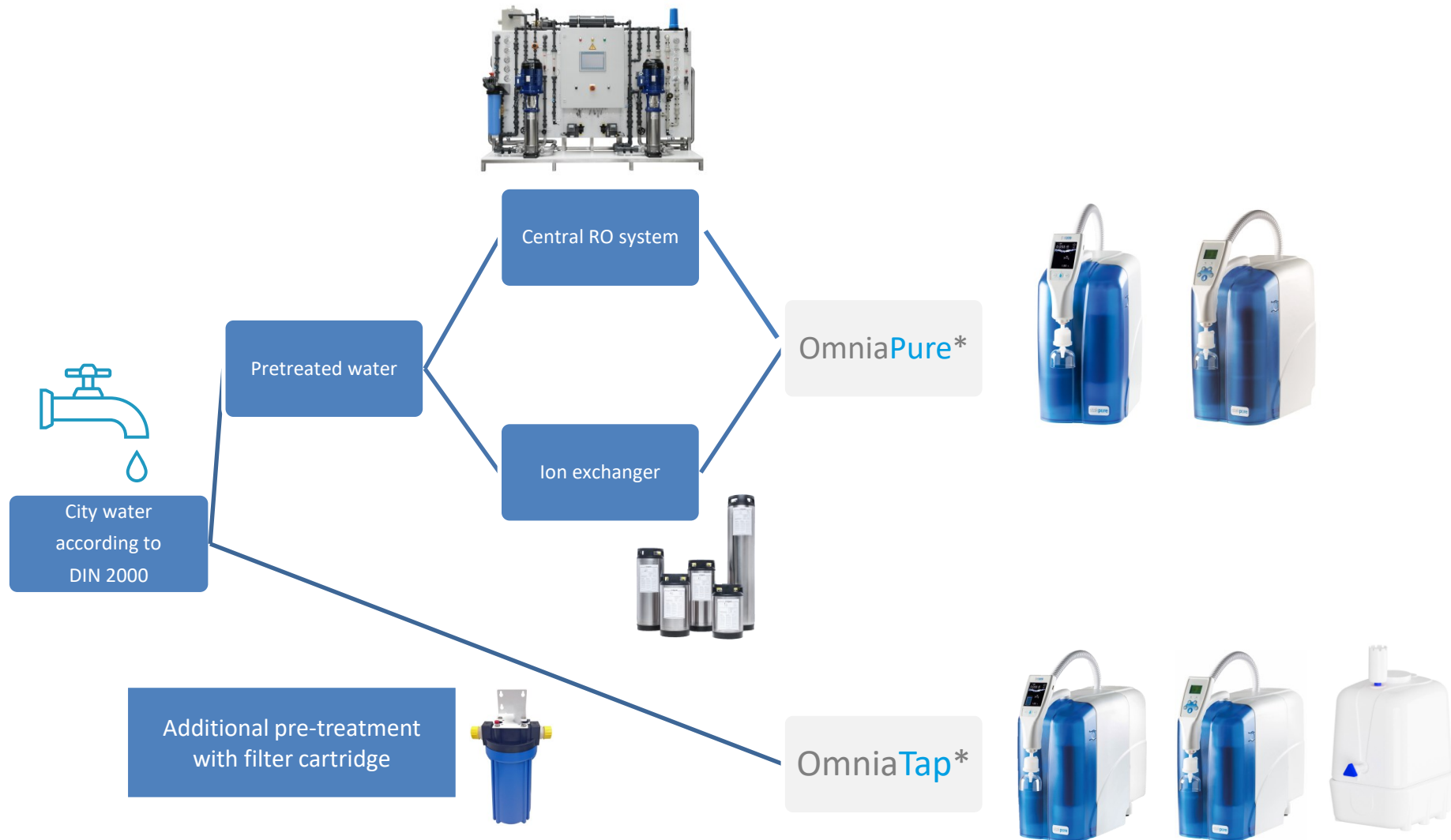
30 / 60 l  
Storage tank



OmniaLab  
ED / UP

100 l  
Storage tank

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\* All versions of the respective article groups

## QUESTION 1:

Which standard is the most common in Laboratory applications?

- ASTM type I - III
- ISO
- CE
- Aqua Purificata

## QUESTION 2:

How can you monitor in detail the pure water quality?

- Temperature
- Conductivity / Resistivity
- pH measurement
- Color change

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Q & A



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