



Water purification

Water systems: Finding the right option for your lab

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Purified water is essential for every lab, but selecting the right system can be difficult. Your workflows can require different purity, volume, and dispensing. Typically, selection decisions can be broken down into four topics: purity, feed water, features, and cost. Let's break this down:



Purity

Our systems can produce Type 1, Type 2, and reverse osmosis (RO) water. Type 1, or ultrapure water, is required for many laboratory applications including the most sensitive analytical processes. This includes analytical chemistry, molecular biology, QA/QC, and industrial process. Type 2, or pure water, is used in workflows such as feeding equipment, glassware washers, and basic reagent formulation. A general application guide can be found below.



Feed water

Different systems require different water sources to feed into the purification flow. It is important to understand if your lab has tap water or pretreated water.



Features

Flow rate, leak detection, advanced monitoring, and touch-based interfaces are examples of what sets our different systems apart. Knowing how much water you need per day is important. Simpler systems offer the same high quality purified water as more feature-rich systems, and each system has exceptional strengths.



Cost

Owning and operating a water system involves two major costs: startup and lifetime consumables (cartridges, filters). Our systems include all components needed to operate at startup with single SKU ordering. Thermo Fisher Scientific has extended cartridge life and efficient consumable replacements.

Selecting the right system for your needs

Choosing the right water purification system is necessary to help ensure the quality, consistency, and performance your application requires. The following selection guide is designed to help you identify an excellent system based on your specific water quality

needs. Use the flow charts on the next pages to navigate the options: the first focuses on Type 1, the second covers Type 1 & Type 2, and the final chart guides you through selecting a Type 2/reverse osmosis (RO) water system.

Water purification: model selection flow chart

Type 1 water, purified feed

Applications: HPLC, GC, MS, genomics, cell culture, molecular biology, immunochemistry

Feed water: Water purified by RO, ion exchange or distillation

Type 1 systems supplied with pretreated feed water (RO, ion exchange, or distillation, conductivity <2 uS/cm) help deliver ultrapure water for high-sensitivity analytical and life science applications such as HPLC, GC, MS, genomics, cell culture, molecular biology, and immunochemistry. These units help provide high flow rates, reliable TOC monitoring, and flexible dispensing options for demanding laboratory environments.



Type 1 water supports:



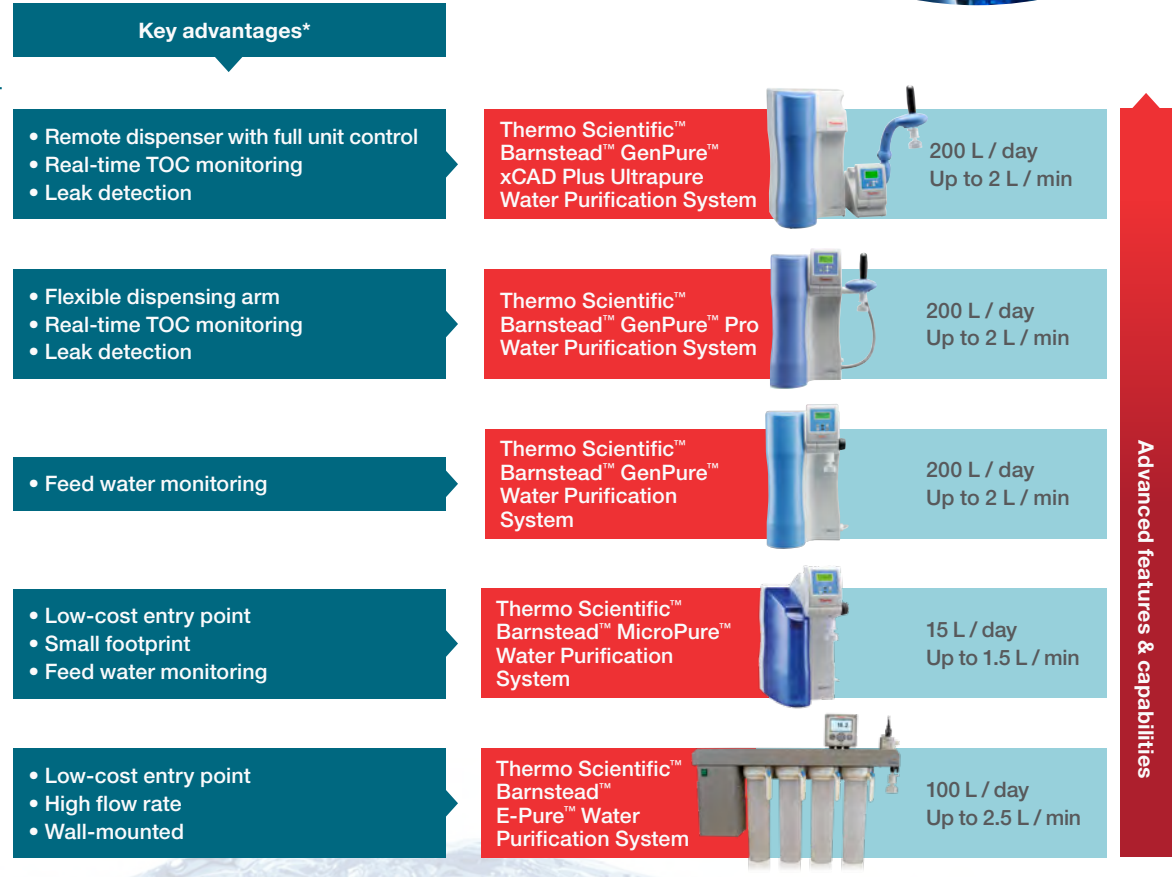
Thermo Scientific™ Orbitrap™ Exploris™ GC Mass Spectrometer



Thermo Scientific™ iCE™ 3300 AAS Atomic Absorption Spectrometer



Thermo Scientific™ Vanquish™ HPLC & UHPLC Systems



Advanced features & capabilities

*For a full list of advantages, please see page 6

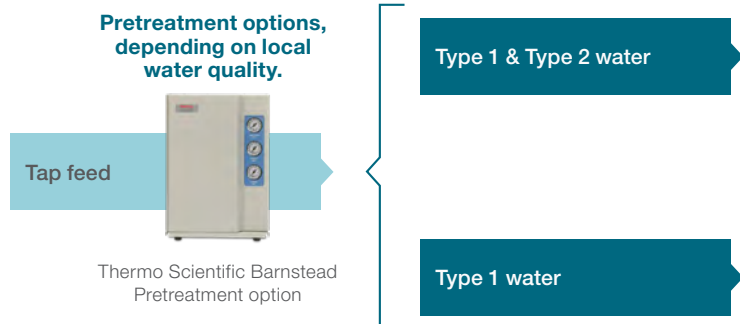
Water purification: model selection flow chart

Type 1 water, tap feed

Applications: HPLC, GC, MS, genomics, cell culture, molecular biology, immunochemistry

Feed water: Potable tap water fed into pretreatment

Type 1 systems operating directly from tap feed, utilizing pretreatment and RO purification stages. They are designed to produce ultrapure water for analytical and biological applications where consistent water quality and ease of operation are required. Configurations support multiple storage capacities, wall-mount installation, and smart dispensing interfaces for precise volumetric control.



*For a full list of advantages, please see page 7

Key advantages*

- Smart Touch volumetric dispenser & interface
- Sustainability features
- Recirculating tank

- RO purity monitor
- Leak detection
- Recirculating tank

- Economical design
- Flexible installation

- Low-cost entry point
- High flow rate
- Wall-mounted
- Accepts direct tap feed

Thermo Scientific™ Aquanex™ Water Purification System

200 L / day
Up to 2 L / min

Thermo Scientific™ Barnstead™ Smart2Pure™ Pro Water Purification System

70 L / day
Up to 2 L / min

Thermo Scientific™ Barnstead™ Smart2Pure™ 6 Water Purification System

70 L / day
Up to 1 L / min

Thermo Scientific™ Barnstead™ E-Pure™ Water Purification System

20 L / day
Up to 2.5 L / min

Advanced features & capabilities

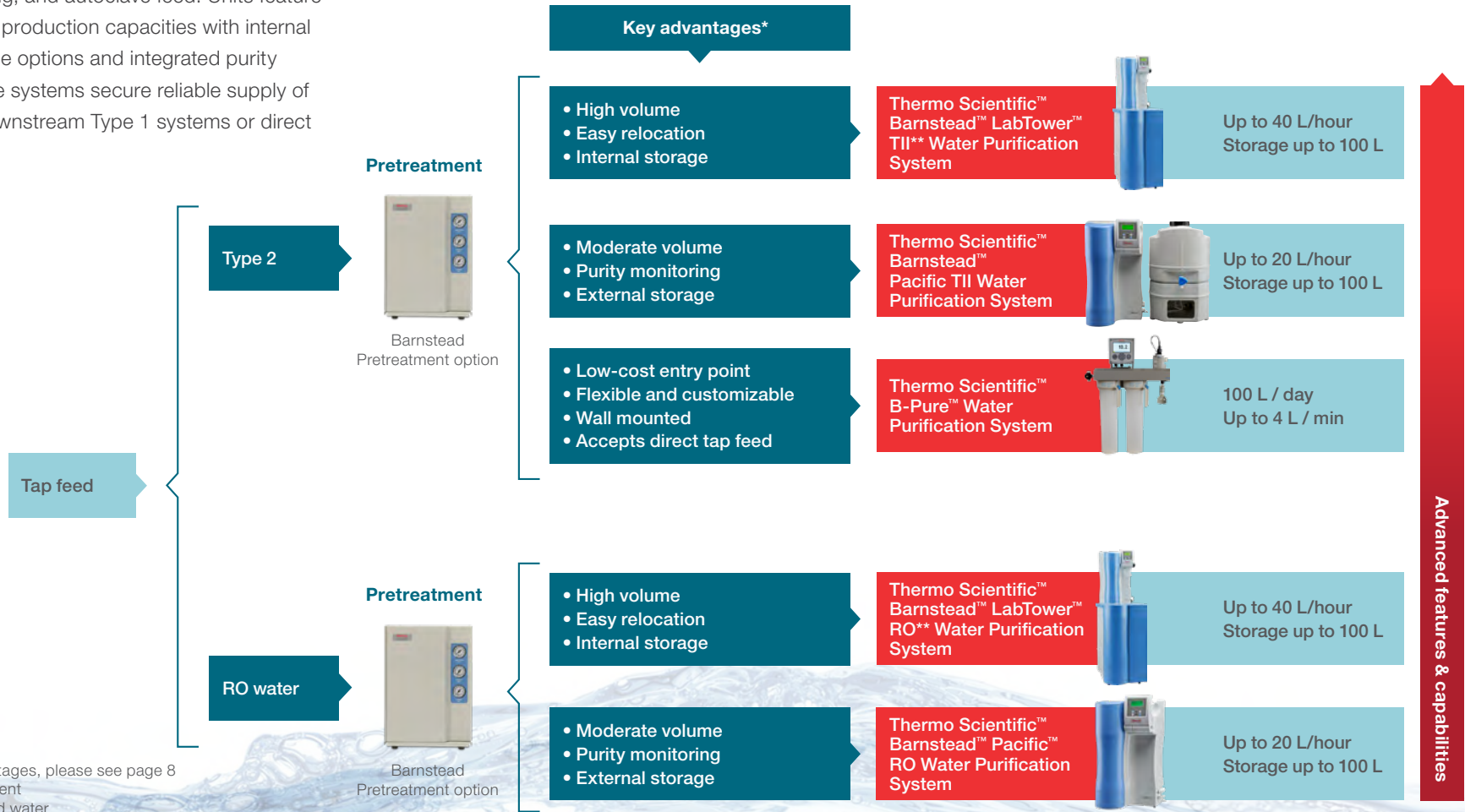
Water purification: model selection flow chart

Type 2 water / RO water, tap feed

Applications: General lab equipment feed (autoclave, glassware washer), buffer prep

Feed water: Potable tap water

Type 2 and RO water systems are intended for general laboratory applications such as buffer preparation, glassware washing, and autoclave feed. Units feature moderate to high production capacities with internal or external storage options and integrated purity monitoring. These systems secure reliable supply of feed water for downstream Type 1 systems or direct equipment use.



*For a full list of advantages, please see page 8

**Integrated pretreatment

***Based on pretreated water

Thermo Scientific Water Purification

Let's understand what differentiates our water purification products

Pre-treated feed water, Type 1 product water purification systems
Dispenses ultrapure 18.2 MΩ.cm water



	GenPure xCAD Plus Extended control and volumetric dispense	GenPure Pro Flexible dispensing arm with a wide radius	GenPure Ergonomic, small footprint polishing system	Micropure Compact, portable system for low volume demands	E-Pure Economic, simple, cartridge-based system
Capacity (L/day)	200	200	200	15	Up to 300*
Flow rate (L/min.)	Up to 2	Up to 2	Up to 2	Up to 1.5	Up to 2.5
Feed water requirements	Water purified by RO, ion exchange or distillation (Conductivity <2 μS/cm)				Water treated by RO, ion exchange or distillation (Conductivity <2 μS/cm).
Advantages	<ul style="list-style-type: none"> Versatile installation options wall-mounted or on or under a bench Real-time TOC monitoring Optional ergonomic dispensing with up to 3 smart remote dispensers Precise volumetric dispensing Quick-connect cartridge replacement Leak detection UV, UV/UF, UV-TOC and UV/UF-TOC options Electronic logs 	<ul style="list-style-type: none"> Versatile installation options wall-mounted or bench Real-time TOC monitoring Flexible dispensing Quick-connect cartridge replacement Integrated feed water monitoring for Genpure xCAD and Genpure Pro Precise volumetric dispensing Leak detection UV, UV/UF, UV-TOC and UV/UF-TOC options Electronic logs 	<ul style="list-style-type: none"> Versatile installation options, wall-mounted or bench. Integrated feed water monitoring Quick-connect cartridge replacement UV, UV/UF options Electronic logs 	<ul style="list-style-type: none"> Integrated feed water monitoring Reservoir-fed option available Recirculation pump Variable flow rate dispense Quick-connect cartridge replacement UV, UV/UF options 	<ul style="list-style-type: none"> Digital resistivity meter Recirculation pump High flow rate Easy to change large capacity cartridges Wall mounted with optional remote dispenser
Applications	<p>Analytical (buffers and sample preps): High-performance liquid chromatography (HPLC); Gas chromatography (GC); Ion chromatography (IC); Inductively coupled plasma spectroscopy (ICP); Mass spectroscopy (MS); Atomic absorption (AA); Total organic carbon (TOC)</p> <p>Life sciences: Genomics (e.g., PCR, mutagenesis); Proteomics (e.g., crystallography, electrophoresis); Immunology (e.g., monoclonal antibody production, blots); Pharmacology, Cell and tissue culture; Drug discovery; Molecular biology; Microbiology</p>				

*300L using purified feed water only

Tap feed water, Type 1 and Type 2 product water purification systems

Dispenses ultrapure 18.2 MΩ.cm water, and Type 2 (1-10 MΩ.cm) water



	Aquanex Next-generation tap-to-Type 1 & 2 water system	Smart2Pure Pro Versatile and compact Type 1 & 2 with enhanced features	Smart2Pure 6* All in one, compact and economical	E-Pure Economic, simple, cartridge-based system
Capacity (L/day)	Type 1: up to 200 L/day Type 2: up to 16 L/hour (10 L internal or 30 L tank)	Type 1: up to 70 L/day Type 2: up to 16 L/hour (30 or 60 L tank)	Type 1: up to 70 L/day	Type 1: up to 20 L/day with direct tap feed
Flow rate (L/min.)	Type 1: 1.5 (from 10 L internal tank) Type 2: 2 (from 30 L tank)	Type 1: 1 Type 2: 2 (from 30 L or 60 L tank)	Type 1: 1	Up to 2.5
Feed water requirements	Potable tap water pretreated with Barnstead Pretreatment System or suitable alternate		Potable tap water**; can be pretreated with Barnstead Pretreatment System or suitable alternate	Potable tap water
Advantages	<ul style="list-style-type: none"> Versatile installation bench or wall Ergonomic water dispensing with remote volumetric dispenser Smart touchscreen interface on unit and Type 1 dispenser Exceptional performance (TOC < 3 ppb, RNase 1 pg/mL, and total silica < 3 ppb) Self-serviceable design, save on service technician costs UV/UF Enhanced monitoring: leak detection, automatic feedwater shut off, variable flow control 	<ul style="list-style-type: none"> Versatile bench or wall mounted installation Enhanced monitoring - RO water purity, leak detection; automatic feedwater shut off; variable flow control Economical design – cartridges with long life Quick cartridge replacement Flexible water dispensing with optional remote hand dispenser Automatic water recirculation UV/UF Code-protected system parameters 	<ul style="list-style-type: none"> Versatile bench or wall mounted installation Economical design – cartridges with long life Easy dispensing with variable flow control and optional hand dispenser Quick cartridge replacement UV or UV/UF option Integrated 6L reservoir provided 	<ul style="list-style-type: none"> Digital resistivity meter Recirculation pump High flow rate Easy to change large capacity cartridges Wall mounted with optional remote dispenser
Applications	<p>Type 1:</p> <p>Analytical (buffers and sample preps): High-performance liquid chromatography (HPLC); Gas chromatography (GC); Ion chromatography (IC); Inductively coupled plasma spectroscopy (ICP); Mass spectroscopy (MS); Atomic absorption (AA); Total organic carbon (TOC)</p> <p>Life sciences: Genomics (e.g., PCR, mutagenesis); Proteomics (e.g., crystallography, electrophoresis); Immunology (e.g., monoclonal antibody production, blots); Pharmacology, Cell and tissue culture; Drug discovery; Molecular biology; Microbiology</p> <p>Type 2:</p> <p>General lab purposes: Feeding general lab equipment (autoclaves, water baths, incubators), humidification, glassware washing / rinsing, some media and buffer prep, chemical and biochemical reagent prep.</p>			

*Smart2Pure 6 cannot dispense Type 2 water

** Please see the user manual for the complete list of feed water requirements

Tap feed water, Type 2 and RO product water purifications systems

Dispenses Type 2 (1-10 MΩ.cm) or reverse osmosis purified water



	Pacific TII Automatic and economical purification and storage	LabTower TII Mobile purification and integrated storage	B-Pure Cartridge-based, customizable and economical with high flow rates	Labtower RO Mobile purification and integrated storage	Pacific RO Economical purification and storage
Water type	Type 2 product water			RO product water	
Capacity (L/hour)	7, 12, or 20 L/hour (storage in 30, 60 or 100 L tank)	40 L/ hour (up to 85 L ready to dispense in 100L reservoir)	up to 4 L/min	40 L/ hour (up to 85 L ready to dispense in 100L reservoir)	7, 12, or 20 L/ hour (storage in 30, 60 or 100 L tank)
Feed water requirements	Tap water, softened or hardness stabilized; or pretreated with Barnstead Pretreatment System	Tap water, softened or hardness stabilized; or pretreated with integrated pretreatment	Potable tap water; or water treated by RO, ion exchange, or distillation	Tap water, softened or hardness stabilized; or pretreated with integrated pretreatment cartridges	Tap water, softened or hardness stabilized; or pretreated with Barnstead Pretreatment System
Advantages	<ul style="list-style-type: none"> Versatile installation – benchtop or wall-mounted Flexible water dispensing from the storage tank or optional hand dispenser Automatic operation for continuous monitoring of all critical parameters High-performance RO membrane Water recirculation Optional UV photo-oxidation at 254 nm Electronic logs 	<ul style="list-style-type: none"> Floor installation – casters for easy relocation Integrated pretreatment with 5 µm prefilter and activated carbon Automatic operation for continuous monitoring of all critical parameters High-performance RO membrane Water recirculation Optional UV photo-oxidation at 254 nm Adjustable reservoir volume for low-demand periods Electronic logs 	<ul style="list-style-type: none"> Flexible and customizable to meet your specific applications Single, double and half size holder models. High flow rate system up to 4 L/min Quick-release canisters Optional digital purity meter or Pura-Lite “Go/No Go” resistivity indicator 	<ul style="list-style-type: none"> Floor installation – casters for easy relocation Integrated pretreatment with 5 µm prefilter and activated carbon Automatic operation for continuous monitoring of all critical parameters High-performance RO membrane Adjustable reservoir volume for low-demand periods Electronic logs 	<ul style="list-style-type: none"> Versatile installation – benchtop or wall-mounted Flexible water dispensing from the storage tank High-performance RO membrane Data monitoring Electronic logs
Applications	Type 2 / RO: General lab purposes: Feeding general lab equipment (autoclaves, water baths, incubators), humidification, glassware washing / rinsing. Preparing and diluting buffers and reagents, chemical and biochemical reagent prep. Supplying ultrapure water systems.				

A system for every workflow

Whether your work is in cell culture, analytical chemistry, or industrial applications, Thermo Fisher Scientific has a system to meet your needs.

Please reach out to your local representative to support – we would love to hear about your process and how our equipment and instruments can support your work. For full ordering information, please consult our digital water book.



Learn more at thermofisher.com/waterpurification

thermo scientific

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