

Ultra pure water, 18,2 MΩ×cm.

TKA GenPure.
TKA xCAD.



For Life Sciences,
Analyses and
Laboratory applications

TKA WATER
PURIFICATION
SYSTEMS

■ TKA GenPure. TKA xCAD.

■ Ultra pure water 18,2 MΩ×cm, TOC 1 – 5 ppb. Assured quality. Even for the most demanding and sensitive applications.

In the Biosciences

- For molecular biology and microbiology work
- In the preparation of cell and tissue cultures
- In PCR, DNA sequencing
- Electrophoresis

In Analytical Chemistry

- Organic and inorganic trace analysis
- HPLC
- GC-MS, ICP-MS, GF-AAS
- TOC Measurements, IC

In Routine Laboratory Work

- Analytical procedures
- IC, AAS, ICP-ES

Norms

All TKA Genpure systems exceed the norms ASTM type I, ISO 3696 Grade 1, ASTM D 1193, CLSI.





■ **Made-to-measure performance. The right system for any requirements.**

TKA GenPure

TKA GenPure is a system to produce Type I, reagent-grade water suitable for all general laboratory applications.

TKA GenPure UF

With ultrafiltration for pyrogen- and nuclease-free water.

TKA GenPure UV

With 185/254 nm UV photooxidation for the reduction of organic compounds.

TKA GenPure UV/UF

With a combination of ultrafiltration and UV photooxidation.

TKA GenPure UV/TOC

With UV photooxidation and TOC value display.

TKA GenPure UV/TOC/UF

With 185/254 nm UV photooxidation, ultrafiltration and TOC value display.

Each system can be optionally installed space-savingsly under the bench or in a lab cupboard, whereby up to three control/dispenser units can be connected at a distance from it, with convenient control at each point-of-use.

All TKA systems can be qualified acc. to GLP and USP 30 <645> and <643>.

■ **TKA xCAD Control And Dispenser unit.**

Gives you more elbow-room on the lab bench. Usable as bench-top or wall mounted system. Provides more flexibility to ultra pure water dispensing! See pages 6 and 7 for more details.



■ **Intelligent technology that simplifies your work. Day for day!**

■ **Optimum System Performance!**

Visible ultra pure water quality.

The measurements of conductivity and real-time TOC value are made directly prior to the dispensing valve. The display shows the most important measured values during ultra pure water dispensing. For example:



The display shows

- Non-Stop:** System ready for ultra pure water dispensing
- 1 ppb:** TOC value of the ultra pure water
- 0.055 µS/cm:** Conductivity of the ultra pure water
- 0.01 Liter:** Adjustable volume to be dispensed
- 22.7 °C:** Temperature measured for conductivity compensation
- UV/TC:** UV lamp and temperature compensation switched on

All other display values and limiting value settings can be called from the menu by keystroke. Limiting values can be individually set, protected from unauthorized access. A fault message to the operator signals any overrun.

Trends and faults can so be recognized early, allowing appropriate measures such as cleaning and disinfection to be immediately carried out.

Automatic interval switching of the pump ensures regular recirculation of system-held ultra pure water through the purification circuit and UV photooxidation. Water remains clean and free from recontamination.

Fully automatic disinfection of all internal components that contact water.





■ With the greatest accuracy!

Measurement of conductivity

- By two high precision measuring cells. With fully automatic check and calibration prior to each measurement via built-in reference resistance.

Temperature measurement

- By a platinum chip temperature sensor of +/- 0.1° C accuracy. With temperature compensation that can be switched off acc. to USP <645>.

Online TOC measurement at the dispensing point

- Real time TOC monitoring for continual measurement of organic substances in the water acc. to USP 30 <643>.

Intensity monitoring

- A photosensor continually checks the intensity of the UV lamp. A decrease in the measured UV radiation that would lead to an incorrect TOC measurement result is directly indicated in %.

The display shows

| | |
|--------------|-------------------------|
| UV time | UV Lamp operating |
| 01012 h: | time |
| UV intensity | UV Intensity comparison |
| 96 % | value |



■ With much comfort!

Easily readable

- The ergonomically designed control/dispenser unit can be tilted for optimal key pressing and dazzle-free readability.



- Illuminated four-line alphanumeric display.
- Display of conductivity (in $\mu\text{S}/\text{cm}$) or specific electrical resistance (in $\text{M}\Omega\text{xcm}$).

Simple to use

- Menu-driven operation with clear text displays of all functions and performance parameters.
- Choice of English, German or French.

Exact dosing

- High precision PVDF drawoff valve for dispensing with sterile filter
- Electronic dosing programme for fully automatic volume control of 0.01 – 65.0 litres.
- More than 30 cm free space for dispensing, even suitable for high vessels.

Fully automatic functioning

- Digital microprocessor control for automatic monitoring and control, with storage of faults from the last four weeks. Integrated in the operating and control unit, protection type IP 54.
- Real-time clock and code protected operating system prevent unauthorized changes and settings.

GLP Documentation

- RS 232 Interface with adjustable sending intervals, for safe data transmission of all measured values and faults, with date and time, to a PC or printer.

Rapid cartridge replacement

- The Aquastop quick-connects of the ultra pure water set allow replacement within seconds during operation.



■ TKA GenPure. TKA xCAD.



■ For flexible operation in the lab!

No one laboratory is quite like the other and the jobs to be done are also different, just as are the wants for the place and position of an ultra pure water system that is to supply one or more workplaces. GenPure offers here a wide spectrum of set-up possibilities for the optimum choice.

■ Ultra pure water. There where you need it.

With a footprint about the size of an A 4 portrait, GenPure can be stood on the lab bench or, if preferable, it can be hung on a wall (without the need for extra mounting material).

The space-saving under bench version can have up to three flexible control/dispenser units fitted to it for use at up to 3 m distance from it.





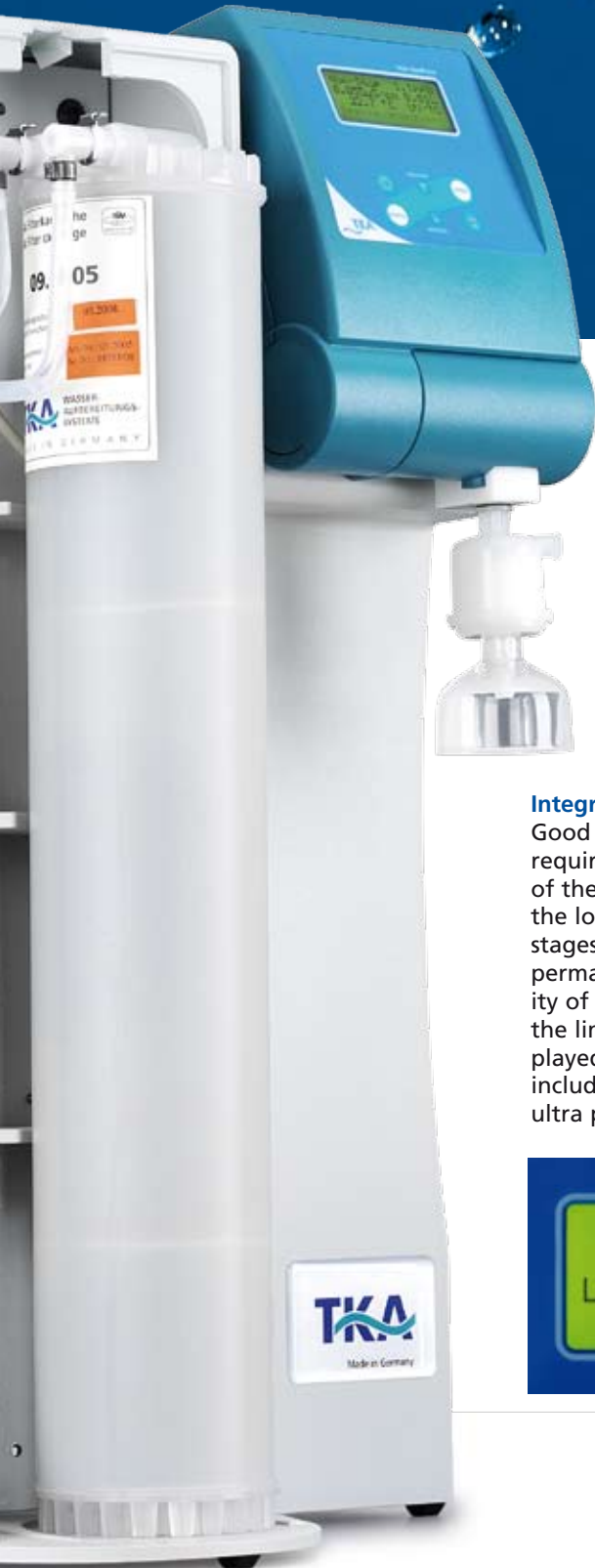
■ TKA xCAD: extended Control And Dispenser unit

High performance in compact format!
Leaves more elbow-room on the lab bench!

- Can be stood on a bench or be even more space-savingly wall mounted
- Inclinable operator module for practical handling and good viewing
- Complete system control and steering via the operator module
- Turnable and height adjustable dispenser arm with extendable joystick. Action radius 80 cm
- Ergonomically shaped dispensing pistol provides highly precise volume dosing at the press of a button



■ **Economical.**
By long-lasting replacement parts.



UV Photooxidation 185/254!

An optional, high performance UV unit serves for a reliable reduction in the content of microorganisms and their metabolites. The top-grade UV lamp is of synthetic quartz glass for the greatest light yield of exactly the right wavelengths. It is held in a robust and corrosion-resistant ANSI 316 L stainless steel housing.

Integrated feedwater monitoring

Good quality feedwater is a basic requirement for the degree of purity of the water produced, as well as for the long service lives of all purification stages. An additional measuring cell permanently monitors the conductivity of the feedwater. Any exceeding of the limiting value is immediately displayed. The feedwater must always be included in a proper validation of an ultra pure water system.

Intensity monitoring included!

The intensity of the the UV radiation is permanently monitored and displayed in %. The UV lamp must therefore only be replaced when really necessary.

Long-lasting ultrafilter!

A high efficiency ultrafilter reduces the level of endotoxines. The large ultrafiltration area and the surface-cleaning automatic rinse ensure both a high flow rate and a long service life.

Powerful ultra pure water set!

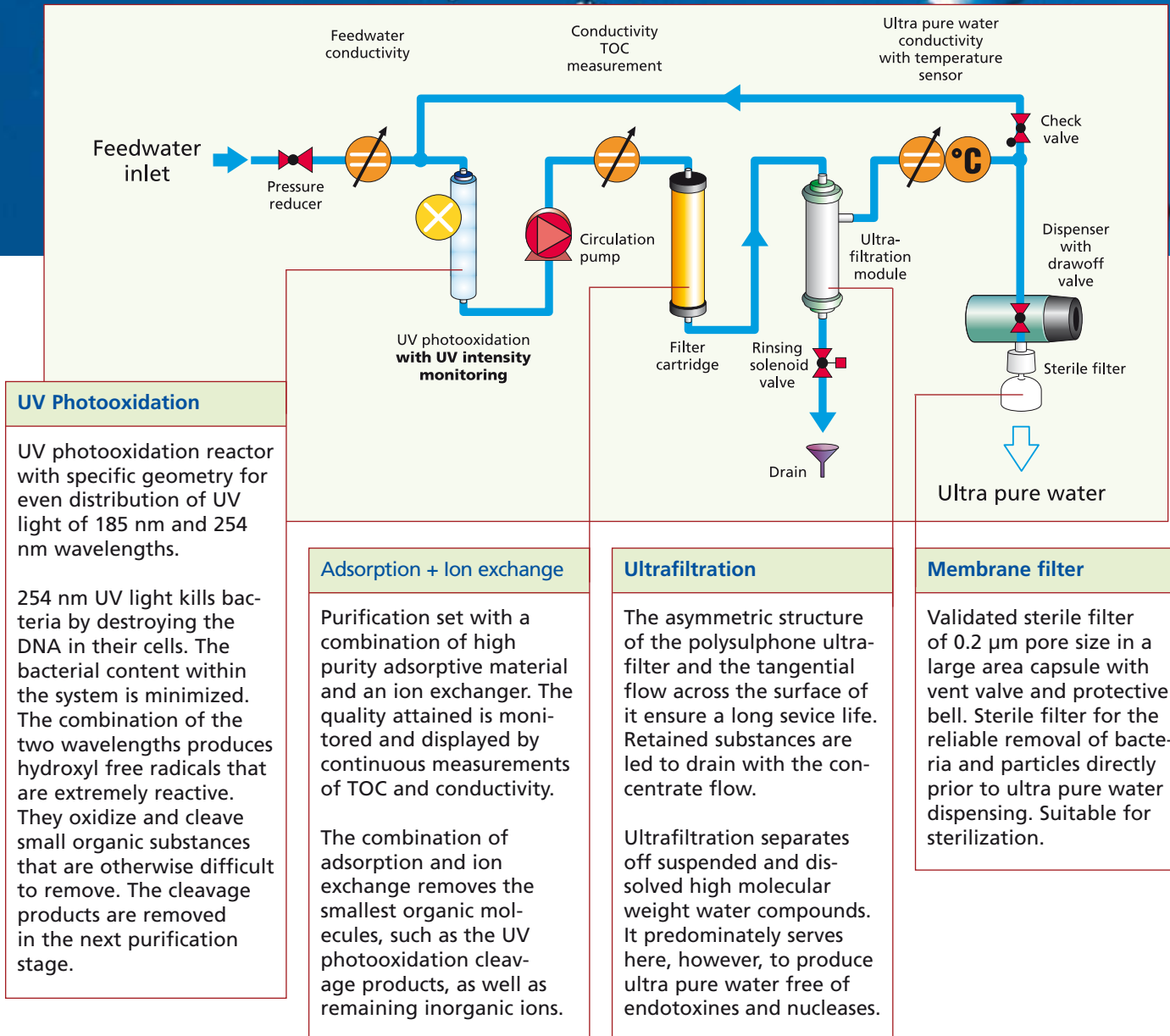
The ultra pure water set is very generously dimensioned. It so combines a long service life with cost-saving. The display gives notice of when it should be replaced.



TKA Technology.

TKA Technology effectively combines various highly efficient purification stages and so minimizes organic and inorganic compounds to their detection limits.

Flow chart: TKA GenPure UV-TOC/UF



The result: Ultra pure water of ASTM Type 1 quality.

| | |
|------------------------------|---------------|
| Conductivity in µS/cm: | 0.055 |
| Resistivity, MΩxcm at 25 °C: | 18.2 |
| TOC value in ppb: | 1 – 5 |
| Bacteria in CFU/ml: | < 1 |
| Particulates, > 0,22 µm/ml | < 1 |
| Endotoxines in EU/ml: | 0.001 |
| RNase in ng/ml: | 0.01 |
| DNase in pg/µl: | 4 |
| Flow rate: | Up to 2 l/min |

Technical specifications

| | TKA GenPure | TKA GenPure UF | TKA GenPure UV | TKA GenPure UF/UV | TKA GenPure UV-TOC | TKA GenPure UV-TOC/UF |
|---------------------------------|-------------------------------|--|--|--|--|--|
| Applications: | AAS, IC, ICP, standard buffer | Molecular biology, microbiology, PCR, IVF, monoclonal antibodies | Inorganic and organic trace analysis, HPLC, ICP-MS, IC, TOC analysis | Molecular biology, PCR, DNA, monoclonal antibodies, cell culture media | Chemical analysis (trace analysis, HPLC, IC, ICP-MS, TOC measurements) | Biosciences (cell and tissue culture media, PCR, DNA, monoclonal antibodies) |
| Flow rate in l/min: | up to 2 | up to 2 | up to 2 | up to 2 | up to 2 | up to 2 |
| Conductivity in µS/cm: | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 |
| Resistivity (MΩxcm at 25 °C): | 18.2 | 18.2 | 18.2 | 18.2 | 18.2 | 18.2 |
| TOC Value (ppb): | 5 – 10 | 5 – 10 | 1 – 5 | 1 – 5 | 1 – 5 | 1 – 5 |
| Bacterial level (CFU/ml): | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Particles (0.22 µm/ml): | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Endotoxines* (EU/ml): | — | 0.001 | — | 0.001 | — | 0.001 |
| RNase* (ng/ml): | — | 0.01 | — | 0.01 | — | 0.01 |
| DNase* (pg/µl): | — | 4 | — | 4 | — | 4 |
| Operating pressure: | 0.1 – 6 bar | 0.1 – 6 bar | 0.1 – 6 bar | 0.1 – 6 bar | 0.1 – 6 bar | 0.1 – 6 bar |
| Mains voltage: | 230 V/ 50 Hz | 230 V/ 50 Hz | 230 V/ 50 Hz | 230 V/ 50 Hz | 230 V/ 50 Hz | 230 V/ 50 Hz |
| Power consumption: | 0.1 kW | 0.1 kW | 0.1 kW | 0.1 kW | 0.1 kW | 0.1 kW |
| Connector size: | R ¾" male | R ¾" male | R ¾" male | R ¾" male | R ¾" male | R ¾" male |
| Ambient temperature: | +2 °C – + 35 °C | +2 °C – + 35 °C | +2 °C – + 35 °C | +2 °C – + 35 °C | +2 °C – + 35 °C | +2 °C – + 35 °C |
| Dimensions W x D x H, in mm: | 372 x 330 x 615 | 372 x 330 x 615 | 372 x 330 x 615 | 372 x 330 x 615 | 372 x 330 x 615 | 372 x 330 x 615 |
| Weight (kg): | 22 | 23 | 23 | 24 | 24 | 25 |
| Cat. no.: | 08.2202 | 08.2203 | 08.2205 | 08.2204 | 08.2206 | 08.2207 |

| GenPure systems incl. xCAD dispenser | TKA GenPure | TKA GenPure UF | | TKA GenPure UV-TOC | TKA GenPure UV-TOC/UF |
|--------------------------------------|------------------------------|------------------------------|---|------------------------------|------------------------------|
| | with dispenser bench version | with dispenser bench version | | with dispenser bench version | with dispenser bench version |
| Cat. no.: | 08.2212 | 08.2213 | — | 08.2216 | 08.2217 |
| | TKA GenPure | TKA GenPure UF | | TKA GenPure UV-TOC | TKA GenPure UV-TOC/UF |
| | with dispenser wall version | with dispenser wall version | | with dispenser wall version | with dispenser wall version |
| Cat. no.: | 08.2222 | 08.2223 | — | 08.2226 | 08.2227 |

* Depending from the concentration of contaminants in the feedwater

UF = with add. ultrafilter
UV = with 185/254 nm photooxidation

UV-TOC = with UV lamp 185/254 nm photooxidation and TOC display
UV-TOC/UF = with UV lamp 185/254 nm photooxidation, TOC display and ultrafiltration



Log printer

Log printer for connection to purified water and ultra pure water systems with RS 232 interface. For safe documentation of all measured values and faults with date and time in compliance with GLP-Guidelines.

Cat. no.: **09.2207**

Replacement items and accessories

- 09.2002** Replacement UV-lamp
- 09.2005** Ultra pure water cartridge
- 09.1003** Sterile filter, 0.2 µm
- 09.2201** Disinfection cartridge
- 09.2202** Disinfection kit, pack of 12
- 09.2210** Volume dosing (standard for GenPure systems with xCAD)
- 09.2900** Qualification documents acc. to GLP

TKA xCAD

External dispensing with control unit

- Actions radius: up to 0.8 m
- Tilting radius: 180°
- Dispensing rate: up to 1.2 l/min
- Distance from main system: up to 3 m
- Connectable number of dispenser units: up to 3

■ Feedwater requirements for TKA GenPure

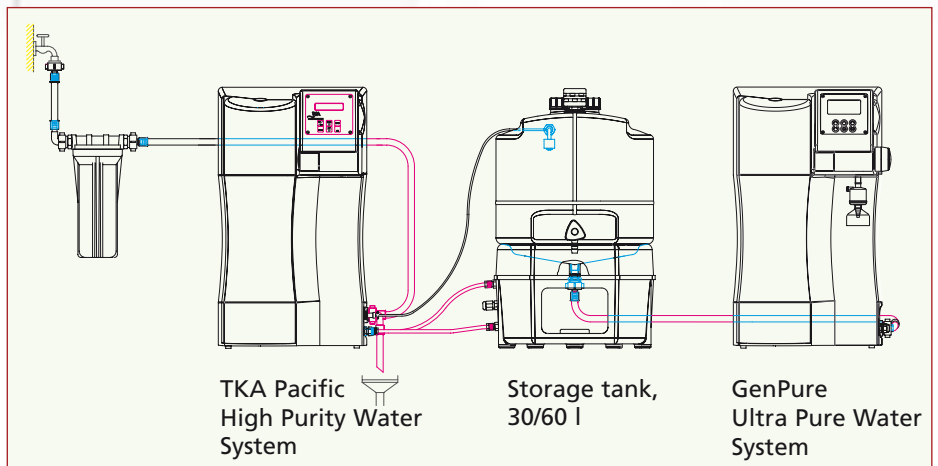
TKA Pacific. Changes tap water to ASTM Type II water, the ideal feedwater for GenPure.



We recommend distilled water or tap water that has been pretreated by flow through a DI type TKA ion exchanger or a TKA Pacific water purification system with connected 30 or 60 litre storage tank. Please request our TKA Pacific UP/UPW and TKA ion exchange brochures.

Feedwater specifications:

Colloid index (SDI): max. 1
 Conductivity: <math>< 5 \mu\text{S}/\text{cm}</math>
 TOC value: max. 50 ppb
 Free chlorine: max. 0.05 ppb
 Turbidity: <math>< 1.0 \text{ NTU}</math>
 Carbon dioxide: max. 30 ppm
 Silicate: max. 2 ppm
 Pressure: 0.1 – 6 bar
 Ambient temp.: +2 °C – +35 °C





■ Qualification and Maintenance

Technical support in the qualification of your TKA GenPure system

The assembly, installation, start-up, operation and maintenance of the system are explained in detail in the Operating Instructions. Proper operation ensures a constant production of ultra pure water within the given specifications for a long time. The Operating Instructions are also an extremely important basis for the qualification of the system.

The TKA Qualification Manual

This is designed to assist you in qualifying your system. A series of steps lead through Design Qualification (DQ), Installation Qualification (IQ) and Operating Qualification (OQ) to the final evaluation of the qualification documents.

Maintenance

We recommend that you sign a maintenance contract with your TKA authorized customer service company for the carrying out of all calibration and maintenance work.

You then have the assurance that the GLP-conformity and high operational safety and reliability of your system will be maintained.

Your TKA authorized specialist distributor:



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