

TORRENT™ PW

PHARMACEUTICAL WATER SOLUTIONS

PREMIUM STANDARD FEATURES

“Our smart design focus integrates many upgrades that combine sustainable operation and ergonomic sampling and maintenance in order to enhance the ownership experience of your Aqua-Chem system.”

- Modular “plug-and-play” design
- Operator-focused sampling and maintenance
- Stainless steel frame and enclosures
- 316L tubing with $\leq 20 \mu\text{-in Ra}$ after RO
- Catalytic carbon with spare exchange vessel
- Active feedwater disinfection and Cl_2 monitor
- Insulated SST break tank with CIP functionality
- All-electric Hot Water Sanitization (HWS)
- Continuous product demineralization
- Oversized, easy-to-use 15” HMI
- GAMP 5 documentation package
- Complete Factory Acceptance Test (wet FAT)
- Remote diagnostics & 24/7 post-sales support
- Made in and serviced from the USA

FLEXIBLE OPTIONS & UPGRADES

- Hot or ambient storage and distribution
- 1 or 2 Pass reverse osmosis in FRP or SST
- Chemical dechlorination and pH adjust
- Steam sanitization and chiller exchangers
- Loop disinfection and 6.0 kDa ultrafiltration
- Upgraded sensors, TOC, and Bioburden
- Engineer-led Commissioning and Validation
- IQ/OQ Protocols and Execution
- Extended warranty, service, and spare parts



USP PURIFIED WATER (PW) GENERATION SYSTEMS

The **TORRENT™** PW Packaged RO/CEDI USP PW System generates compendial water that exceeds current USP, PhEur, and JP requirements for pharmaceutical, biotechnology, and cosmetic applications. The premium design emphasizes ease of use and maintenance with fully automated features like hot water sanitization, an ergonomic sampling station, and the best, high-end, non-proprietary components selected for reliable, efficient service. Qualified water is delivered consistently and with minimal downtime. TORRENT™ water systems include short lead times and are fully factory tested for fast installation, start-up, and validation.

Aqua-Chem’s TORRENT™ Pharmaceutical Water Solutions Deliver:

- **Uncompromised Design**
- **Effortless Integration**
- **Intuitive Functionality**
- **Bulletproof Documentation**



GLOBAL • WATER • SOLUTIONS

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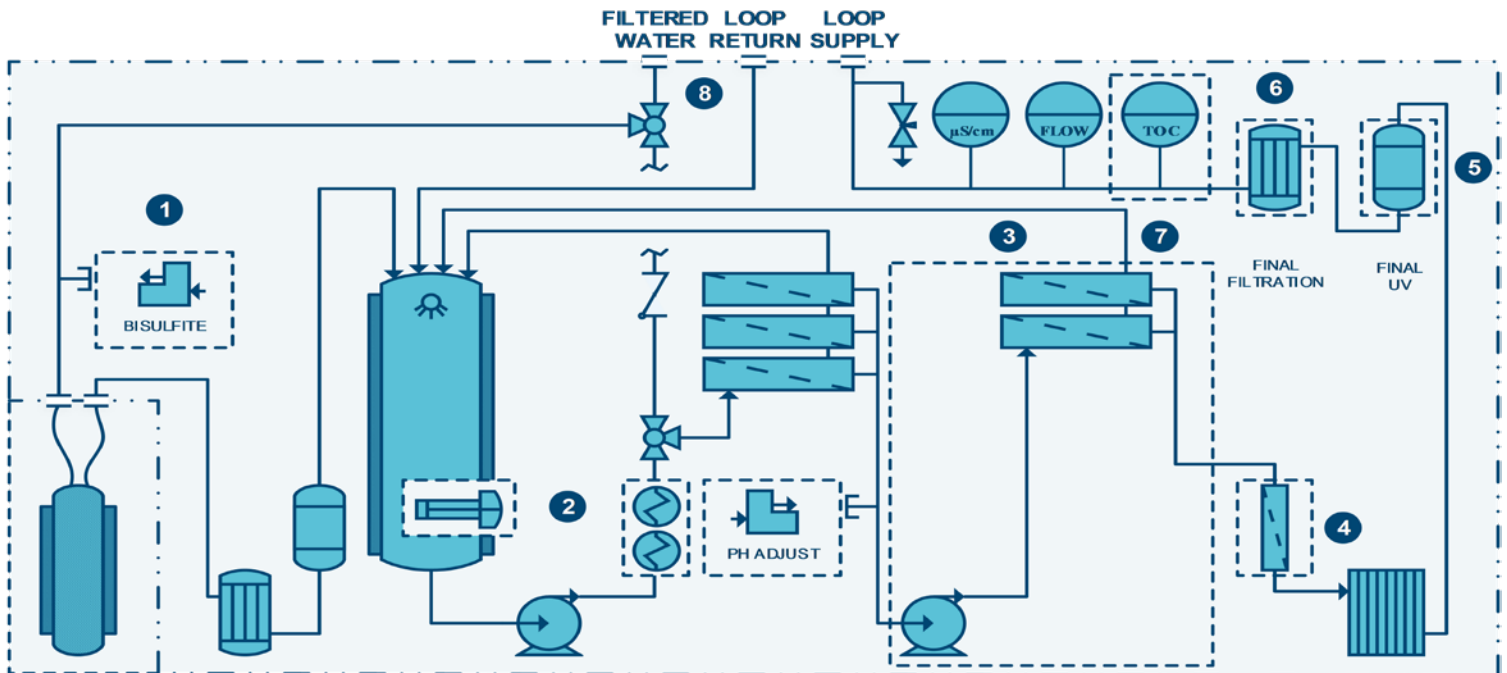
TORRENT™ PW GENERAL SPECIFICATIONS

STANDARD MODELS ¹	TNTPWQ03	TNTPWQ05	TNTPWQ10	TNTPWQ30	TNTPWQ45
LOOP SUPPLY RATE²	2.7-3.3 gpm 0.6-0.75 m ³ /h	4.5-6.0 gpm 1.0-1.36 m ³ /h	9.0-11.0 gpm 2.0-2.5 m ³ /h	27.0-33.0 gpm 6.1-7.5 m ³ /h	40.5-49.5 gpm 9.2-11.2 m ³ /h
MINIMUM RETURN FLOW² (RECOMMENDED)	1.0 gpm 0.2 m ³ /h	1.0 gpm 0.2 m ³ /h	5.5 gpm 1.2 m ³ /h	14.0 gpm 3.2 m ³ /h	14.0 gpm 3.2 m ³ /h
DIRECT FEED MODE (OPTIONAL)	2.7-3.3 gpm 0.6-0.75 m ³ /h	4.5-6.0 gpm 1.0-1.36 m ³ /h	9.0-11.0 gpm 2.0-2.5 m ³ /h	27.0-33.0 gpm 6.1-7.5 m ³ /h	40.5-49.5 gpm 9.2-11.2 m ³ /h
DESIGNED TO EXCEED	FDA cGMP Guidelines and USP, PhEur (EP), and JP Requirements for Purified Water				
TRIPLE-MEMBRANE WFI BASE CONFIGURATION	Catalytic Activated Carbon, Fines Filter, 254nm Disinfection UV, Break Tank + Electric HWS, Single or Two-Pass Reverse Osmosis, Continuous Electrodeionization				
NOMINAL RECOVERY	75.0-85.0% (Up to 100.0% in Conservation Mode)				
FEEDWATER SOURCE	Filtered and Softened EPA Potable Water				
FEEDWATER TEMPERATURE	55.0 °F - 95.0 °F (12.8 °C - 35.0 °C)				
FRAME CONSTRUCTION	Bead Blasted 304 Stainless Steel				
PIPING MATERIALS	304 SST Sanitary Tubing, ≤ 20 Ra after RO and Electropolished Post-CEDI Product Contact				
ENCLOSURES	Stainless Steel NEMA 12 with Oversized HMI (Allen Bradley PanelView™ Plus 7 15" Standard)				
ELECTRONICS RECORDS	Title 21 CFR Part 11 Ready with Options for Audit Trail and Active Directory User Administration				

¹Alternate configurations, including higher flows, are available via our dedicated project engineering and management team.

²Feedwater conditions may affect system performance. Given ranges assume specified water source and operation at 77.0 °F (25.0 °C)

PROCESS FLOW DIAGRAM



PROCESS OPTIONS AND UPGRADES	1	2	3	4	5	6	7	8
	CARBON OR CHEMICAL DECHLORINATION	ELECTRIC OR STEAM HEATING & COOLING HX	1 OR 2 PASS REVERSE OSMOSIS + FRP OR SST	MEMBRANE OR CHEMICAL CO ₂ REMOVAL	LOOP DISINFECTION	LOOP ULTRAFILTRATION	TOC + CL ₂ ANALYTICAL & CHART RECORDER	UTILITY PRETREATMENT & DRAIN QUENCHING