



Puretech™  
delivering purity

# WATER DISTRIBUTION SYSTEMS

For Pharmaceutical Applications



# The ultimate in pharmaceutical water delivery

Puretech has built an enviable reputation for design and installation of high quality pharmaceutical water systems, taking responsibility for integrating standard equipment from various suppliers to deliver turnkey solutions to our clients.

Puretech offers a standard range of modular compact distribution skids for the following applications;-

**Purified water**

**Water for injection**

ozone or heat sanitisation



Puretech WFI Skid

## System control

Siemens S7 PLC (option - Allen Bradley) with touch screen HMI to allow ease of operation and monitoring.

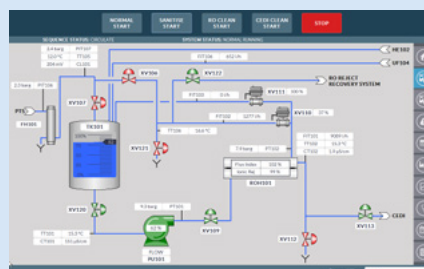
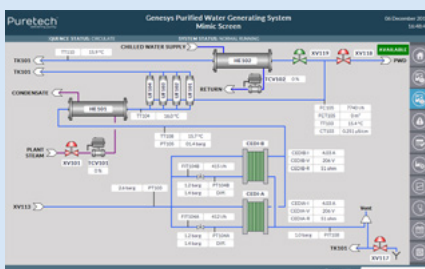
Control and monitoring from a single interface with data logging facilities and links to user BMS/SCADA systems.

GAMP and 21 CFR 11 compliant with electronic signature and data logging.

The control system has the flexibility to operate complete turnkey packages allowing clients to reduce costs and simplify operation using a single access interface for pre-treatment, purification, storage and distribution.

Flowrate, temperature and conductivity measurement with TOC as an option.

Standard system can monitor and control up to 12 Automatic user points.



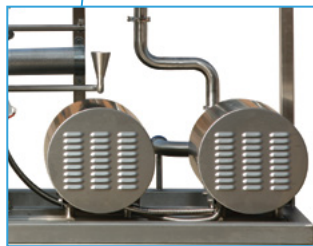


Puretech Ozone Skid



### Ozone Generator

Electrolyte production of ozone to provide levels of 20 to 40 ppb within the storage tank – typically < 1cfu/100ml and <0.06 Eu/ml endotoxin levels.



### Sanitary Centrifugal Pump

single pump with swing bend piping arrangement to suit dry spare (option). Variable speed drive limits pump flowrate to maintain 1m/ sec on loop return and save energy.



**Heat Exchanger** to provide trim cooling maintaining 20°C in the system or to maintain/ sanitise the system at 80 to 85°C.

## System components

- All components are sourced from leading global suppliers to ensure highest quality and local sources available for spares.
- Sanitary centrifugal pump including drain valve with variable speed drive control
- Shell and tube heat exchangers (DTS style) for ultimate security and low maintenance
- Sanitary Coriolis flowmeter – fully drainable
- Non compensated conductivity meter
- Heated 0.2micron sterile vent filter (fitted to tank)
- Sanitary bursting disc with contact alarm (fitted to tank)
- Sanitary sampling valves
- Tundishes connected to common drain
- Inline TOC meter - option
- Inline microbial monitoring - option
- Orbitally welded with triclamp mechanical joints to equipment/instrumentation
- UV with intensity monitor and recording for purified water systems
- 3 No. electrolytic ozone generators for ozonated systems.

## Standard system features

- PLC controlled with touch screen HMI
- Modular design on stainless steel frame
- Automatic hot water sanitisation or ozone sanitisation
- Flexible outputs from 1.5 to 45 m3/hr
- Condensed footprint with optimal accessibility
- 316L stainless steel pipework to ASME BPE, internal surface finish < 0.5 Ra. (SFT1)
- 100% boroscope weld inspection
- Validation to regulatory and client standards
- Optimized life cycle cost
- Standard interface with generation system
- Fully drainable, with one drain connection
- Designed for robust and safe operation
- Exceptional high quality (in-house) build in the United kingdom
- Client witnessed factory acceptance test (FAT)

# Technical data

## Purified water distribution systems

### Heat Sanitizable

Model	Max Flowrate m <sup>3</sup> /hr <sup>1</sup>	Instantaneous Demand m <sup>3</sup> /hr <sup>2</sup>	Loop Connections (Triclamp)	Dimensions cm (Length x width x height)
PWD - H - 4	4000	2800	1"	200 x 100 x 190
PWD - H - 10	10 000	6890	1 1/2"	200 x 100 x 190
PWD - H - 20	20 000	12 816	2"	220 x 120 x 210
PWD - H - 30	30 000	20 564	2 1/2"	220 x 120 x 210
PWD - H - 45	45 000	30 140	3"	240 x 120 x 220

### Ozone

Model	Max Flowrate m <sup>3</sup> /hr <sup>1</sup>	Instantaneous Demand m <sup>3</sup> /hr <sup>2</sup>	Loop Connections (Triclamp)	Dimensions cm (Length x width x height)
PWD - O - 4	4000	2800	1"	220 x 100 x 190
PWD - O - 10	10 000	6890	1 1/2"	220 x 100 x 190
PWD - O - 20	20 000	12 816	2"	240 x 120 x 210
PWD - O - 30	30 000	20 564	2 1/2"	240 x 120 x 210
PWD - O - 45	45 000	30 140	3"	260 x 120 x 220

## WFI distribution systems

Model	Max Flowrate m <sup>3</sup> /hr <sup>1</sup>	Instantaneous Demand m <sup>3</sup> /hr <sup>2</sup>	Loop Connections (Triclamp)	Dimensions cm (Length x width x height)
WFID - H - 4	4000	2800	1"	200 x 100 x 190
WFID - H - 10	10 000	6890	1 1/2"	200 x 100 x 190
WFID - H - 20	20 000	12 816	2"	220 x 120 x 210
WFID - H - 30	30 000	20 564	2 1/2"	220 x 120 x 210
WFID - H - 45	45 000	30 140	3"	240 x 120 x 220

<sup>1</sup> Flowrate equates to approx 3m/sec.

<sup>2</sup> This figure is the difference between 1m/sec and 3m/sec (generally accepted as the min flowrate on the return loop and the maximum to optimise system pressure drops respectively).  
This represents the usable flowrate for process applications.

Material/Equipment Specifications	Heat Sanitizable	Ozone	WFI
Pipework and Fittings	316l st/stl ASME BPE <0.5um max to S FT1		
Pump	316l Sanitary centrifugal pump @ 6barg with close coupled drain valve		
Trim Cooler Heat Exchanger	316l st/stl Double tube sheet shell & tube - internal finish <0.5um max to S FT1		–
Heat Exchanger	316l st/stl Double tube sheet shell & tube - internal finish <0.5um max to S FT1		
UV	316l S t/stl Sanitary with UV intensity monitor		–
Valves	316l Sanitary P TFE Diaphragm with internal finish <0.5um max to S FV1		
Flowmeter	316l Endress & Hauser Promass E Coriolis mass flowmeter (Option-P romass P )		
Vent Filter <sup>3</sup>	316l st/stl 0.2um filter c/w heater jacket	316l st/stl 0.2um filter c/w ozone catalytic converter	316l st/stl 0.2um filter c/w heater jacket
Pressure/Level Transmitters	316l Endress & Hauser Cerabar M		
Conductivity Sensor	316l Endress & Hauser Condumax		
Bursting Disc <sup>3</sup>	316l st/stl Santrix burst disc with indicator alarm strip		
Temperature Sensors	316l Endress & Hauser Omnigrad M		
Cabinet	IP55 Epoxy mild coated steel or 304 st/stl (Option)		
Frame	304 st/stl		
Insulation <sup>4</sup>	Plant steam/Chilled water	Chilled water	Plant Steam
Services Required	Heat Sanitizable	Ozone	WFI
Feed Water Quality	Purified Water	Purified Water	WFI
Compressed Air	Instrument grade oil free @ 6barg		
Cooling Water	Chilled water 6 degC - flowrate TBA		–
Plant Steam	6 barg	–	6 barg
Power Supply	380/480V 3 Phase 50/60Hz		–
Drains	Triclamp - common connection on skid to feed to gravity		

<sup>3</sup> Free issued items if Puretech are not supplying the tank.

<sup>4</sup> As standard we insulate the utility services, however we can supply the skids fully insulate to clients requirements as an option.

### Service

Puretech offers comprehensive support to clients including system design, project management, validation, installation, commissioning and on-site maintenance.

### Flexibility

The skids are manufactured to meet the stringest standards, however we understand clients may have specific needs and budgets to meet and we adopt a flexible approach to ensure the client gets what they want.

### Pharamceutical water storage tanks

Puretech is able to supply the highest quality tanks for pharmaceutical water systems. We strongly recommend using design coded 3barg to full vacuum rated tanks with Novaseptic connections and ASME BPE compliant.

**Puretech**<sup>™</sup>  
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