



honeyman  
WATER

# Water and Steam

*Generation and Distribution Systems*



THE QUEEN'S AWARDS  
FOR ENTERPRISE

Operating extensively within the global pharmaceutical, biotech, medical device and related healthcare industries, the Honeyman Group has a well-earned and highly regarded reputation for technical problem solving, knowledge transfer and successful project delivery.

Whether it be manufacturing process issues, equipment and process upgrades, design and engineering, analytical support, audit preparation and responses, or simply an independent review of facility projects and operations, we have the technical expertise and knowledge to provide unbiased and regulatory compliant solutions and advice.

Honeyman's unique position in the market as a holistic service, product and knowledge provider, is built on decades of close alliances with clients, suppliers and industry experts.

Proud winners of



Contract Laboratory: Water and clean steam testing, Finished Products QC release Microbiology, and Finished Product QC release Chemistry, Clean room validation support (e.g. DET, Environmental Monitoring).



Water and Steam: Purified Water & WFI generation and storage, URS consultancy, IQ/OQ and PQ validation, Maintenance and troubleshooting, Consultancy.



Validation Services: Thermal mapping, Cycle development, Control system upgrades, Service and maintenance, Environmental monitoring.



Training: Public Courses, Onsite Courses both generic and bespoke, e-Learning (generic or bespoke solutions), Consultation.



## A TRANSPARENT & FRIENDLY APPROACH

We pride ourselves for being close to our clients, and are often regarded as an extension to their own organisation. Whether it's a one-off project, regular service or maintenance or if you need help with an urgent problem, we happily hear from you.

When quality, compliance, flexibility and efficiency are at the essence of your existing or new purified or WFI water system, there is no better place to turn to Honeyman.

This brochure provides a general overview of the services that Honeyman Water can offer.

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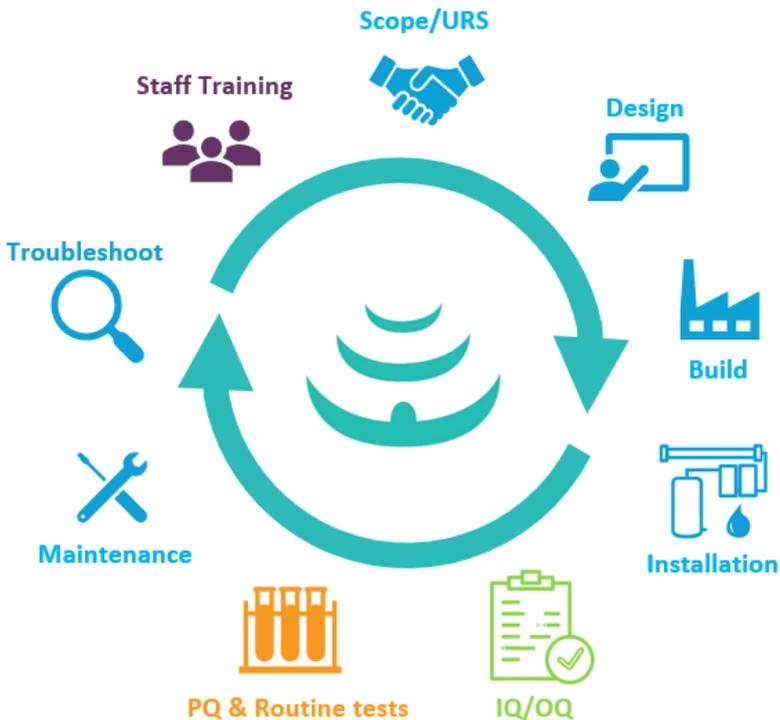
# WHY HONEYMAN WATER?

For decades Honeyman has been synonymous with highly efficient, innovative and quality water systems.

Leading pharmaceutical manufacturers turn to us for expertise and knowledge on purified water, water for injection (WFI) and pure steam generation and distribution systems.

Honeyman is uniquely positioned in the market by being able to offer expertise at all stages of your purified water, WFI and steam needs, including:

- ☑ Consultation and Feasibility
- ☑ User Requirement Specifications (URS)
- ☑ Turnkey project management from design, build, installation to PQ
- ☑ Improving purification and distribution system performance
- ☑ Upgrading control systems
- ☑ Troubleshooting and maintenance
- ☑ Staff training
- ☑ Performance Qualification (PQ)



## DESIGN & MANUFACTURING



Whether your needs require an off the shelf design or a bespoke solution, Honeyman Water has the solution for you.

From pre-treatment, to generation, storage and distribution systems, at Honeyman Water we can provide upgrades to your current system as well as providing complete turnkey purified water systems for new build.

Our skid based solutions are factory tested, reducing the installation and commissioning phase and can either have PLC or basic control systems to suite your requirements.

A range of options are available to provide your choice of critical and non-critical parameters as well as a choice of sanitisation methods including heat and Ozone sanitisation options.

Our product offering includes design, manufacture and installation of:

- ☑ PureGienic Pre-treatment / softening systems
- ☑ PureGienic Generation systems (reverse osmosis - CEDI)
- ☑ Stainless Steel 316 and HDPE storage vessels (vertical and horizontal)
- ☑ Distribution systems (conventional loop and HydroGienic® parallel distribution systems)
- ☑ Distribution loop extensions and modifications (additional or removing points of use)
- ☑ Ozone sanitisation skids including control and monitoring
- ☑ Control panel upgrades to latest PLC (Siemens / Allen-Bradley)



Have a query? Please contact us and we will be happy to assist.



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PureGienic

## PRE-TREATMENT SYSTEMS

Under its PureGienic brand, Honeyman Water offer a range of pre-treatment systems.

Our first step in any successful project is being able to clearly define outcomes and goals. What do you need from your water system? Whilst that may seem a simple question, getting to the correct answers isn't always as straight forward as it seems.

A badly specified system can put unnecessary constraints on site operations and can be costly to rectify once installed.

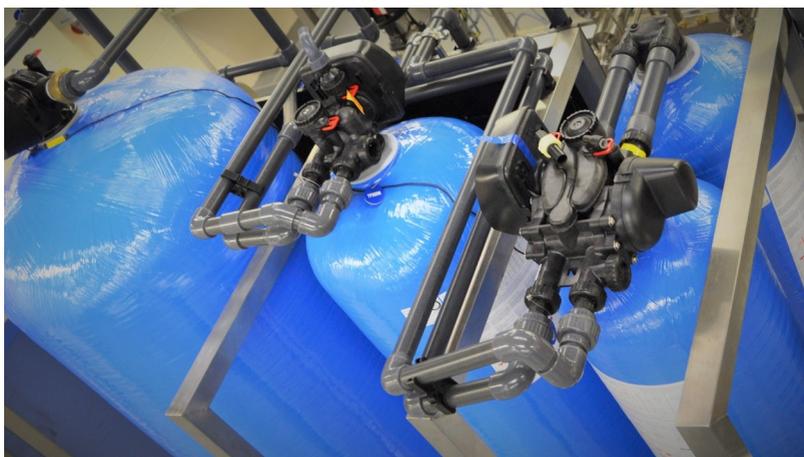
Following a careful evaluation of site feed water the most suitable pre-treatment stages are chosen to remove contaminants through steps including UV lamps, microfiltration, ultrafiltration, multimedia filters and softeners.

To ensure an effective microbial control, systems can be sanitised manually or fully automatically via a range of options including heat and Ozone.

Sample points are provided before and after each stage of the pre-treatment to ensure the pre-treatment system can be managed effectively and efficiently.



A wide range of flowrates are available from several litres per minute to 20m<sup>3</sup>/hr. Systems can be cascaded to provide even larger capacity.



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## GENERATION SYSTEMS

Under its PureGienic brand, Honeyman Water offer a range of generation systems.

Having selected the correct pre-treatment system, Honeyman can provide the most suitable purified water generation system to suite your specific and regulatory needs.

Based on our tried, tested and trusted designs, our solutions can be further customised to give you a choice of control, monitoring and sanitisation.

Purified water is typically obtained through a single or double osmotic stage and for a higher quality, water is additionally passed through a continuous electro-deionizer (CEDI).

Our unique design allows for RO systems to be easily upgraded should your purified water needs increase in the future\*

A range of options are available to reduce or monitor the impact on the environment including energy reducing sanitisation

methods, waste water recovery, energy and water consumption monitoring.

Our designs ensure that you;

- ☑ Fully comply with GMP and regulatory body requirements
- ☑ Are in full control with sanitary in-line instrumentation to monitor product critical parameters such as conductivity, temperature, Ozone in water, TOC and pH.
- ☑ Have all data at your finger tips as all critical parameters are electronically backed-up and available for audits, troubleshooting and maintenance.
- ☑ Are in full microbial control through approved sanitisation methods including Chemical, Heat or Ozone.

**\* subject to factors including but not limited to capacity in feedwater, storage and distribution.**



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# PURIFIED WATER & WFI STORAGE VESSELS

Careful consideration should be given to the design, size, capacity and orientation of the vessel to ensure full drain-ability, sanitary design, adequate water availability irrespective of diversity and of course fitting in the available space.

With over 3 decades of experience, we have helped many clients choose the right vessel design for their application.

Ranging from small storage vessels of 1m<sup>3</sup> to storage capacity exceeding 100m<sup>3</sup>, no challenge is too big or small for Honeyman. Available in vertical and horizontal orientation, depending on available space and point load capabilities.

All our vessels fully meet the GMP requirements, are pressure tested, come with full weld-inspections and are heat and Ozone sanitisable.

Our standard designs come fitted with:

- Sight glass,
- Manway,
- Vent filter,
- Burst disc
- Spray ball and
- Level sensor.
- Additional options available including gantries, cladding and additional monitoring.

With a choice of internal and external finishes, we are confident we can provide the right vessel for you.



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# PURIFIED WATER & WFI DISTRIBUTION

Honeyman is uniquely placed in the market, being able to offer two different distribution options depending on your site requirements.

- Conventional Stainless Steel ring mains
- HydroGienic® parallel distribution

Whilst both systems are suitable for all grades of water, and fully sanitisable by heat, Ozone and chemicals, there is a distinct difference between the two options.

## Conventional stainless steel loop

Conventional stainless steel ring mains are designed, manufactured and installed to the highest industry standard, constructed from a range of grades ranging from SF1 through to SF6.

All welds are done by qualified / coded welders, using orbital welding equipment. Full visual weld inspections come as standard including weld coupons whilst optional video boroscoping and x-ray examination is available upon request.

All stainless steel pipework is pressure tested, degreased and passivated prior to installation.

Our experienced design team ensure that pipework is self draining, has minimal dead legs, has the required speed and flow rate as well as being capable of delivering the desired flow rates at each point of use.

All pipework is suitable for heat and Ozone sanitisation.

When designing a stainless steel ring mains, it is also critical to ensure each future upgrade is being considered upfront, as moving or adding user points in the future, comes with significant challenges and disruptions to the facility.



# HYDROGIENIC® PARALLEL DISTRIBUTION

HydroGienic® is an innovative, proven and patented pure water distribution system, delivering Purified Water or WFI to each point of use directly from the storage tank.

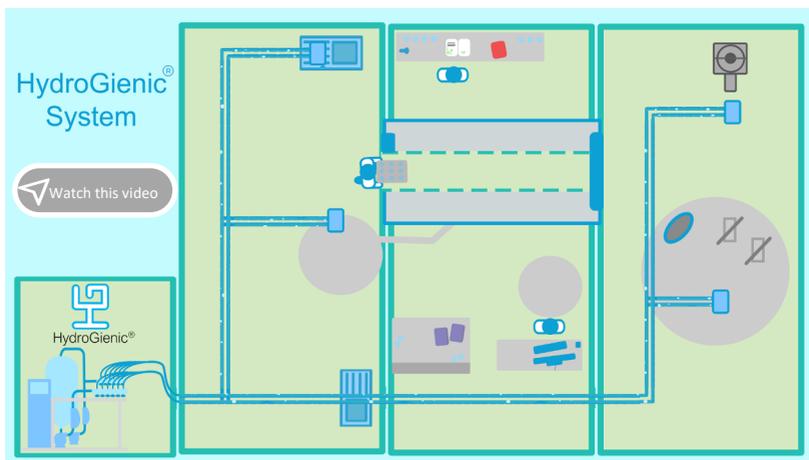
Ideal for facilities where user points are expected to change regularly for instance in contract manufacturing.

The HydroGienic® distribution system is skid based, subject to an FAT and suitable for **all grades of purified water**, and fully sanitisable by heat, Ozone and chemicals.

Its flexible design allows user points to be added, moved or removed with relatively low impact to the rest of the facility.

In 2018, the Honeyman Group was awarded the Queen's Award's for Enterprise for HydroGienic® in recognition for the benefits it brings to the industry.

The video below provides a representation of how the HydroGienic® System works.



The use of PTFE hoses leads to simple installation from the plant room to each point of use, and does not require hot welding.

With a HydroGienic® system there is no need to use and dispose of harmful chemicals, needed to passivate the distribution loop, making HydroGienic® a more environmentally friendly system.

Each user point is connected in parallel, so additional user points can be added without disrupting other user points unlike conventional stainless steel systems where the complete loop has to be drained, prior to cutting into the loop. Therefore, minimising disruption to the facility and offering potential cost savings of £ hundreds of thousands in lost revenue.

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## Key benefits of HydroGienic® over conventional stainless steel

- ☑ 75% reduction in “plant room to offtake” installation time, vastly reducing facility disruption, overall project time and cost
- ☑ HydroGienic® can provide capital savings in the order of 25%
- ☑ No degreasing or passivation of the distribution loop, reducing time, cost and avoid having to discard of harmful chemicals
- ☑ Ability to add or move user points with minimal disruption to the rest of the facility
- ☑ No hot working outside the plantroom thus significantly reducing site disruption and reducing validation effort, time and cost
- ☑ Guaranteed flow rates and pressures to all user offtakes irrespective of usage ensures maximum output is obtained
- ☑ Easy to install along existing conventional water systems requiring new or additional users without disruption to the existing distribution loop



## INSTALL AND COMMISSIONING

Following a successful build and Factory Acceptance Test (FAT), equipment will be shipped to site. On arrival, equipment will be unloaded and safely sited and secured in the plant room.

Our experienced, trained engineers of a variety of disciplines will set to work assembling the plant and connect to site services. After the equipment has been brought online, qualification and commissioning activities will begin.

# SERVICE & MAINTENANCE

Our passionate and independent service and maintenance team provide tailored service level agreements to meet your current and ongoing maintenance needs.

From emergency call-out to 24/7 site based support and scheduled PPM's, Honeyman Water is a valuable extension to your current team.

Having been involved in 100's of pharmaceutical water systems over the past three decades, the Honeyman team is well placed to not only rectify any problems, but can also provide the right strategy going forward to ensure your system is working as expected with minimal downtime.

With support from its own MHRA audited test laboratory, each stage of the purification process can be quickly analysed to give a clear outcome and swift remedy.

Honeyman provide quick, efficient and cost effective services for:

- ☑ Pre-treatment - softeners
- ☑ Resin replacement
- ☑ Control head upgrades
- ☑ Heat-exchanger service, pack replacements & upgrades
- ☑ Pipework replacement and upgrades (PVC, ABS and Stainless Steel 316)
- ☑ Valve service, diaphragm replacements & upgrades (manual to actuated)
- ☑ Reverse Osmosis service, membrane replacement & upgrades
- ☑ Pump repair, replacement and upgrades
- ☑ CEDI service, replacement & upgrades
- ☑ Instrumentation calibration, service & upgrades
- ☑ Control system upgrades to latest Siemens or Allen-Bradley



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## CONTROL SYSTEM UPGRADES

Is your current control system no longer meeting your needs or regulatory requirements? Or has your control system become obsolete? No need to worry, at Honeyman we can assist.

Honeyman offer high quality stainless steel control housings either wall mounted, skid mounted or floor standing and housing the latest Siemens PLC or Allen-Bradley control software.

New control systems offer a range of benefits from:

- ☑ Regulatory compliance regarding data integrity and security
- ☑ Easy to operate user interface
- ☑ Automation of functions reducing human interaction
- ☑ Time and cost saving.

To discuss your control system requirements with one of our experts, please contact us on +44(0)1833 690101 or email [enquiries@honeymangroup.com](mailto:enquiries@honeymangroup.com)



## SKID DESIGN & FABRICATION

Honeyman offer a high quality stainless steel fabrication service including fabrication of Ozone sanitisation skids, Clean In Place (CIP) skids, Steam In Place (SIP) skids, high purity filling lines load spreader plinths and gantries.

Skids are fabricated from stainless steel grade materials. Welds are fully inspected and polished to give a clean and smooth finish.

To discuss your requirements with one of our experts, please contact us on +44(0)1833 690101 or email [enquiries@honeymangroup.com](mailto:enquiries@honeymangroup.com)



# QUALIFICATION IQ / OQ / PQ

**IQ** of generation, storage and distribution systems are a critical part of validation as they are built and assembled onsite.

It is essential to have documented evidence of correct materials, construction and that the components have been installed correctly.

For conventional water systems, it is critical to ensure that all welding and finishes meet the desired and required specifications and that work has been carried out by suitably qualified personnel.

**OQ** Verifies that the equipment upon installation works within the desired operating ranges. The final stage of OQ is the verification and testing of the water to ensure it meets the pharmacopeial or user defined specifications.

Did you know that Honeyman offer a dedicated, fast, secure and controlled sample collection service during the PQ. Contact us today on +44(0) 1833 690101 to discuss your testing needs.



For high intensity **PQ** phases over 28 days we have a dedicated courier and laboratory team that work weekdays and weekends.

Any out-of-specification results are investigated fully upon client request to ensure the swift resolution of any issues that may arise.

## Our microbiological and chemical analysis includes:

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Total Organic Carbon (TOC) Analysis                              | <input checked="" type="checkbox"/> Quantitative Endotoxin (LAL) Analysis | Dishwasher Disinfectant Water and Clean Steam Samples.   |
| <input checked="" type="checkbox"/> Total Viable Count (TVC) Analysis                                | <input checked="" type="checkbox"/> Absence of Objectionable Organisms    | <input checked="" type="checkbox"/> Condensate analysis to HTM 2010, EN 285 or Water For Injection (WFI) specifications. |
| <input checked="" type="checkbox"/> Wet Chemical Tests for Pre-Treatment and Purification Assessment | <input checked="" type="checkbox"/> Conductivity                          |  |
|  | <input checked="" type="checkbox"/> HTM 2030                              |  |
|  | <input checked="" type="checkbox"/> HTM 2031 for                          |  |

## TRAINING & CONSULTATION

Honeyman offers a professional level training program on “Pharmaceutical Water Systems: Principles in Practice®” which provides a much broader overview of water system design, functionality and regulatory expectations.

This training program will see delegates apply their newly acquired knowledge and design their very own water system, which will be fine tuned as the course progresses until they end-up with a highly efficient and effective PW/WFI water system.

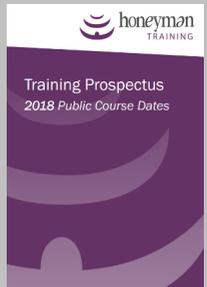


The training course is tailored for personnel involved in the design, management and operation of pharmaceutical, healthcare or biotech water systems from the following disciplines: Engineering, Quality Assurance, Microbiology, QC, Production and Operations.

Visit our website [www.honeymantraining.com](http://www.honeymantraining.com) for our current course prospectus or contact us if you would like a bespoke course delivered on your site.

Download our Public Training Course Prospectus at:

[www.honeymantraining.com](http://www.honeymantraining.com)



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