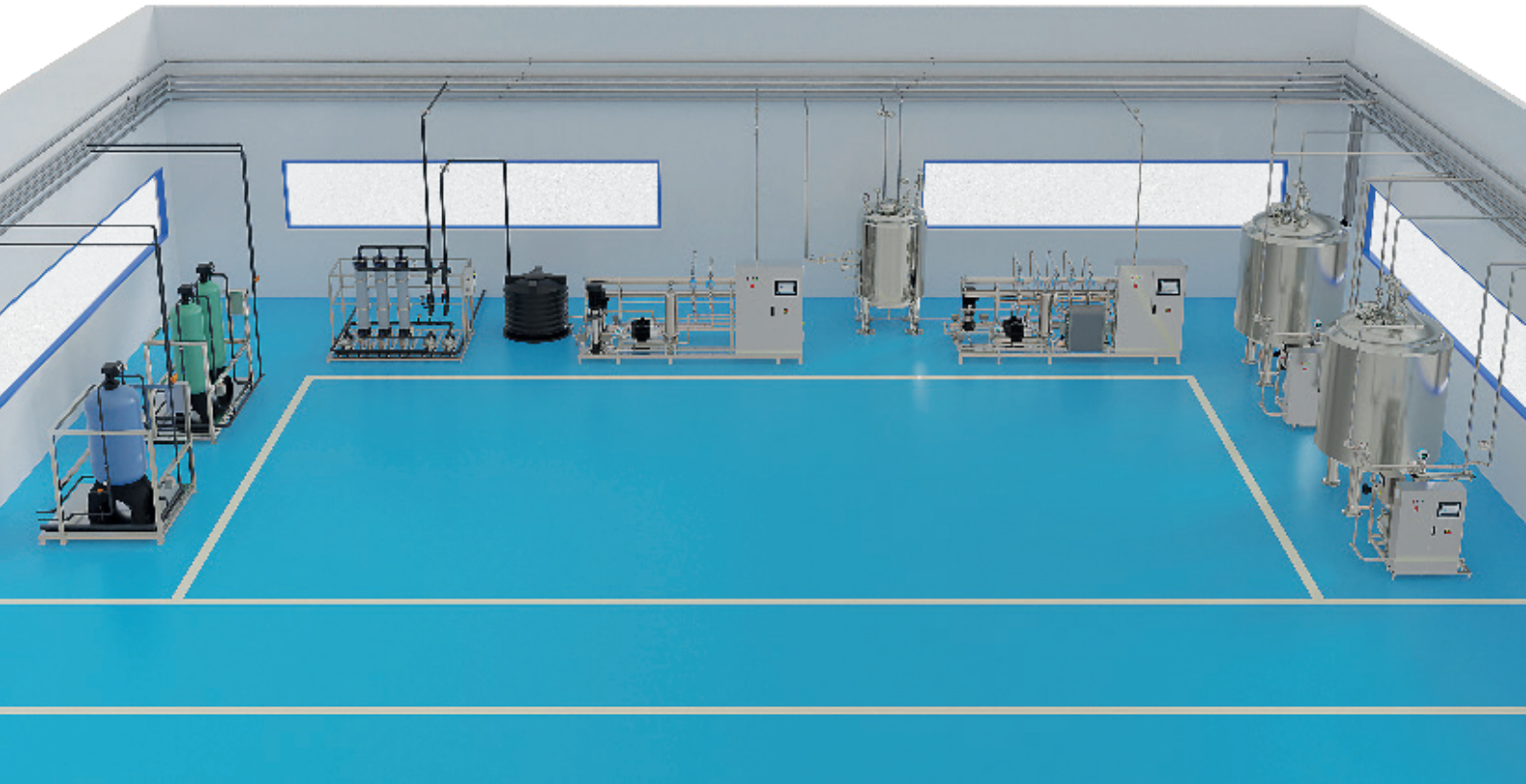


Pharmaceutical **Water** Systems



Purified Water Generation

Storage & Distribution (PWS & WFI)

www.pavitrawatersolutions.com

Distribution Piping (PWS, WFI, CS, Sterile Air)

Process Piping

POU & CIP/SIP

ABOUT US

We Understand Pharma Water

Pavitra Water Solutions is among the premium and widely reputed providers of **Pharmaceutical Water Systems**, **Process Piping** and **Cleanroom Furniture** for *Pharma*, *Biopharma* and *API* industry segments in India.

We are also among the preferred vendors when our customers need their water systems to comply with stringent global standards like the **US FDA**, **MHRA**, **TGA**, **Ph. Europe**, **cGMP** etc.

Headquartered in Visakhapatnam, (Andhra Pradesh, India), we have been offering turnkey solutions in the field of High purity water for close to a decade. In a short span of time, we have evolved as a young and dynamic enterprise gaining customer confidence with completion of every order.

We excel in Design, Engineering, Manufacturing, Installation & Validation support of Pharmaceutical Water Systems.

Our team of highly qualified and experienced engineers work seamlessly with you on your projects from inception (developing the URS) till project handover (final validation).

Our comprehensive turnkey solutions ensure quality of water at the point-of-use is within the design limits. All our products are engineered to deliver quality and quantity with lower operating cost. The Generation System, Storage & Distribution System and Sanitary Distribution Piping are seamlessly integrated and monitored by fully-automated control systems driven by PLC / DCS / SCADA etc.



WHY PAVITRA WATER SOLUTIONS?

Experience, teamwork & manufacturing excellence

Pavitra Water Solutions has close to a decade of experience in providing water systems to the pharmaceutical and bulk drug industry. We understand the needs of the pharmaceutical industry and deliver customised solutions that suits.

We continuously upgrade by up-skilling ourselves with the latest changes in the regulatory guidelines, continuously optimise our products and processes to reduce their operating costs.

KEY DIFFERENTIATORS

- ② Understand your needs better
- ② Rich experience and a proven track record
- ② Systems consistently meet global standards
- ② Turnkey project management capability

MANUFACTURING

- ② Design, engineer and manufacture high-quality systems
- ② Manufacture Pre-tested, Pre-wired, skid mounted systems
- ② A proven quality control process

INSTALLATION

- ② Experienced team of technicians and engineers
- ② Fast and efficient installation

VALIDATION SUPPORT

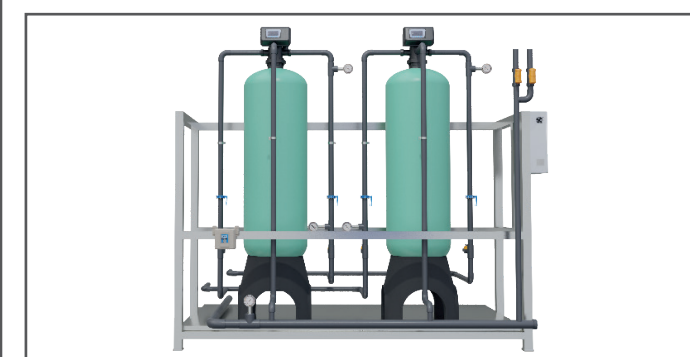
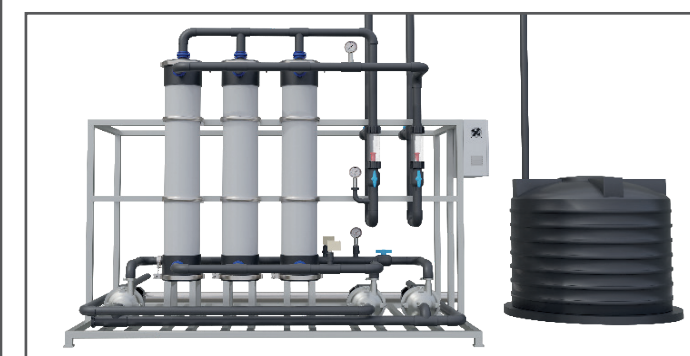
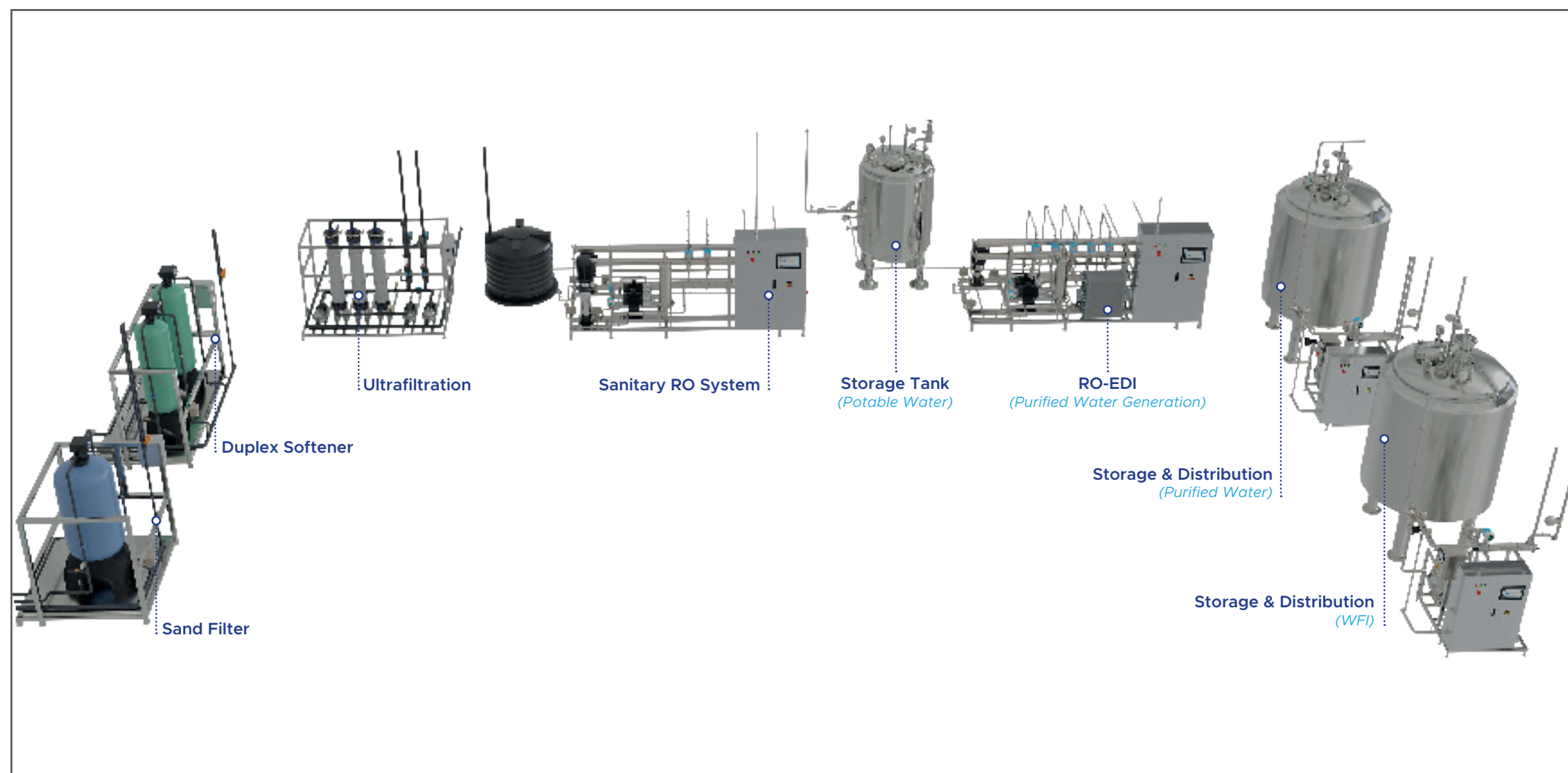
- ② Experienced QC team to support on DQ, IQ & OQ
- ② Comprehensive documentation with full traceability reports

SERVICE SUPPORT

- ② Trained and experienced service technicians
- ② Well co-ordinated service delivery process
- ② Excellent track record in AMC & O&M service delivery



PURIFIED WATER GENERATION



Engineered for quality and efficiency, our Purified Water Generation Systems deliver low conductivity water consistently.

Every purified water generation system is built on the foundation of a good *Pre-Treatment System*. This ensures that the more sensitive RO-EDI system in the downstream perform consistently and at high efficiency.

At Pavitra Water Solutions, we put added focus on this area. Our system designers ensure adequate safety factors while designing the pre-treatment systems considering all seasonal fluctuations in the feed water. Our robust automation design ensures high safety with alarms and auto dumping features.

This means your production can be in full swing as your water quality standards always meets / exceeds the

regulatory requirements. This also means you can put your unflinching focus on your productin rates and rest assured that your water quality is always guaranteed.

Our Typical Generation System include;

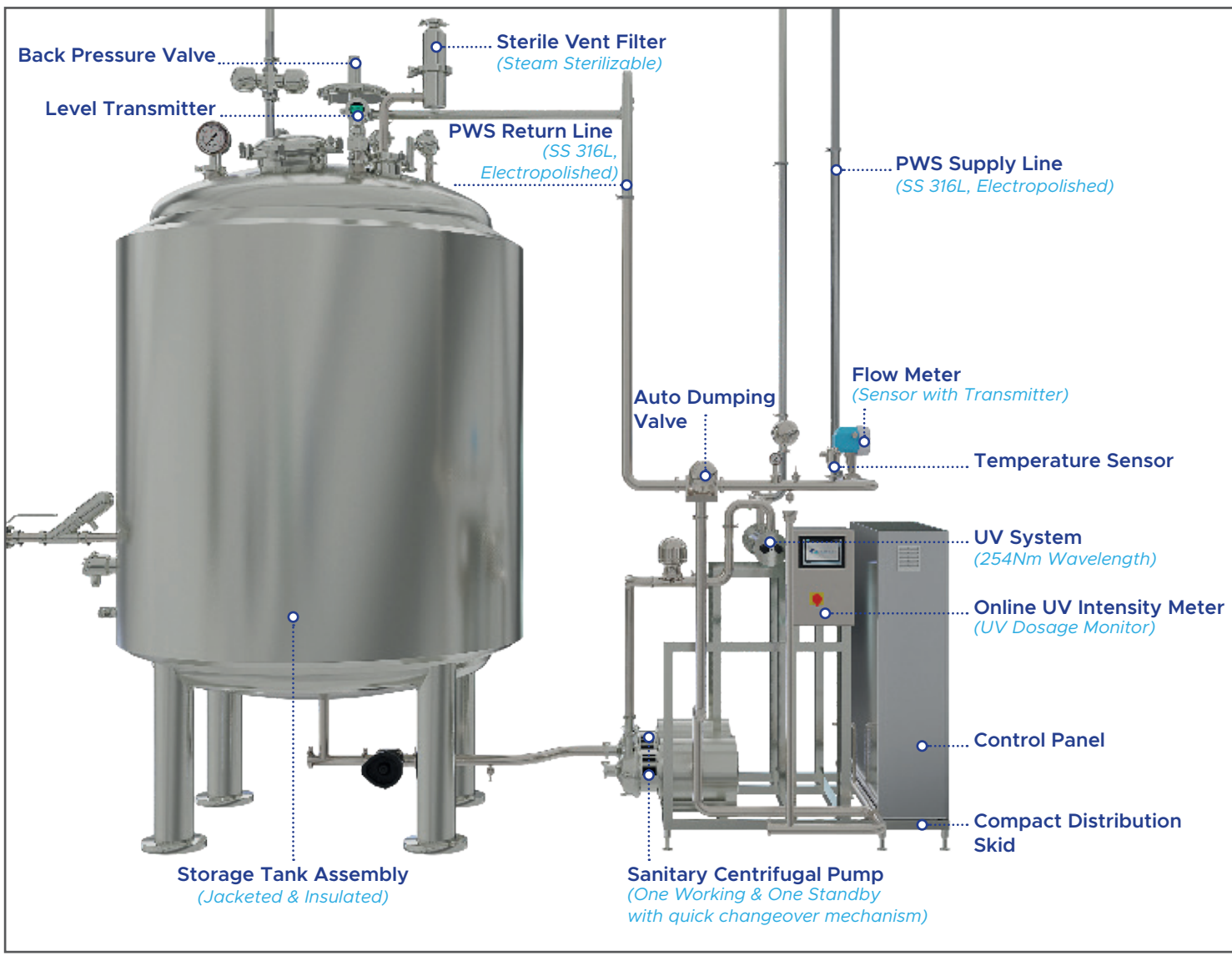
- ② Chlorination / Ozonation System
- ② Multigrade Sandfilter (*Auto backwash*)
- ② Duplex Softener (*Auto re-generation*)
- ② Ultrafiltration System
- ② RO System
- ② RO-EDI System



Salient Features:

- ② Compact, skid-mounted, plug & play
- ② Fully automated
- ② Quality instruments, reputed makes
- ② Pre-validated to FAT
- ② Low footprint
- ② Lower operating cost
- ② Timely service backup
- ② Ease of validation

STORAGE & DISTRIBUTION



Designed to deliver Purified Water & WFI from point of generation to Point-Of-Use with minimal degradation.

Our Storage & Distribution systems are designed and engineered with an objective to ensure water delivery from the point of generation to the point-of-use with minimal degradation. Our Engineering, Quality and Sourcing teams collaborate seamlessly to ensure that all micro and macro aspects that impact the system performance are well monitored and controlled.

Our compact skid mounted Distribution, Disinfection and Monitoring systems are pre-wired, pre-tested and configured as Plug & Play at site. Quality and full traceability is assured right from the sourcing of the raw materials like the steel plates, pipes etc. Every critical

component like the instruments, pumps, valves are sourced from some of the best manufacturers in the world.

A typical system includes:

- ① Storage Tank
- ① Distribution Skid
- ① Ultra-violet System
- ① Monitoring & Control System
- ① Point-of-use Coolers
- ① In-built CIP / SIP capability
- ① PLC / DCS / SCADA control panels

Engineered to minimize microbial growth while maximising operational efficiency

Efficiently designed operational control ensures only the qualified water is delivered at the point-of-use, at designed flow rate, temperature pressure, conductivity along with endotoxin and microbial purity as per the guidelines.



GEMU®
Valves & More



RathGibson



SIEMENS



ALFA



Endress+Hauser



EMERSON



Rockwell Automation



ALFA
THE UV EXPERT

Our systems are energy efficient and deliver higher lifecycle value

While the core focus of our PW & WFI systems is to ensure conformance to the standards, we also put additional focus on the design and engineering to ensure system durability and low operational costs.

Low operational cost can be ensured by reducing the friction, by choosing the right pipe diameter, using Variable Frequency Drive (VFD) to run the pump at lower RPM when demand is less, using minimal bends and valves, efficient routing of the pipe lines, by selecting the right pump and estimating the peak demand accurately.

KEY FEATURES

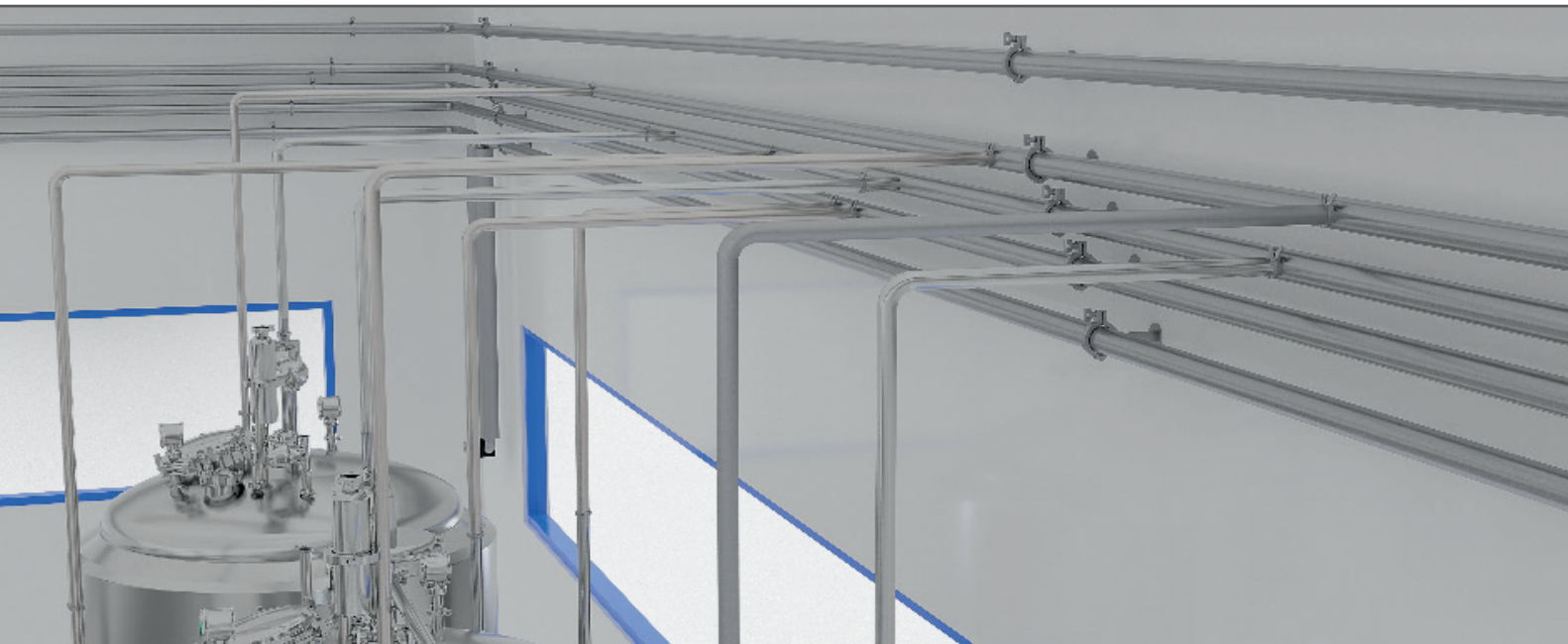
- Factory assembled, Pre-wired, pre-tested
- Compact skid-mounted system
- Instruments sourced from the best in the world
- Highly reliable pumps with standby
- All contact parts electropolished to < 0.4µ Ra
- Control panel with 12" Touch screen with mimic
- Control panel driven by DCS / SCADA / PLC
- Software CFR 21 part 11 and GAMP-5 compliance

6

7

DISTRIBUTION & PROCESS PIPING

Zero dead leg with bacteriostatic environment guaranteed



With kilometers of PWS, WFI & PROCESS piping installed, we know better!

Distribution Piping and Process Piping is an integral and very critical part in the Pharmaceutical manufacturing process. If not designed and erected correctly it may lead to the formation of bio-films, which can quickly become the reason for a total plant shutdown.

For a designer, to ensure that the piping provides a bacteriostatic environment is always a challenge. This is due to the varying sizes of pipes, the number of valves, bends and the sheer length of the distribution loop which can impact the velocity (a very important factor) of the water.

Our time tested orbital welding method and highly experienced and skilled orbital welders guarantee full-penetration welds while ensuring high quality inner weld surface finish. This eliminates the risk of rusting or bio-film formation, which renders the water to be Out-of-Specs. Assuring 100% drain-ability of the pipes is another area that needs proper attention.

Pavitra Water Solutions has in-depth knowledge and experience in providing solutions to these challenges. With years of experience of having erected and validated kilometers of distribution piping for the PWS and WFI combined, we know what it takes to ensure delivery of compendial water from the point of raw water inlet to the point-of-use.

- ⌚ Skilled and experienced fitters
- ⌚ Certified orbital welders
- ⌚ Efficient piping design
- ⌚ High quality installation
- ⌚ Years of pipe installation experience
- ⌚ Zero dead leg design
- ⌚ Full documentation & reports



Tailor-made for you

Efficient & On-time, every time

OUR SERVICES

Your Trusted Partner!

We understand the importance of providing timely and reliable services to our clients. Over the years we have developed a team of highly skilled and experienced engineers to troubleshoot complex problems on-site.

- ✓ Trained and experienced technicians
- ✓ Proven track record
- ✓ Skilled and proactive engineers
- ✓ Experienced documentation team
- ✓ Continuous internal upskilling programs
- ✓ In sync with the emerging technologies



ORBITAL WELDING

For PWS, WFI and Process pipe joints with high weld finish



ERECTION & FITMENT

That is reliable, compliant, fast and efficient with minimal resources



INSTALLATION & COMMISSIONING

By experienced engineers and technicians who understand better



VALIDATION SUPPORT

By a team of quality control experts with rich experience



SERVICE SUPPORT

Timely support by expert technicians ensure faster turnaround



AMC & O&M

Your responsibility is ours. We ensure lower OPEX & higher uptime



OUR QUALITY

Quality is built into our processes from concept to commissioning

People | Process | Product | Service

At Pavitra, quality is ingrained in our pursuit of manufacturing and project execution excellence. It is pivotal in enhancing our brand value, mitigating unnecessary costs, eliminating project execution delays and helps with our guarantees.

Our pursuit of quality is mirrored in the entire value chain of our deliverables. We have processes in place to share knowledge, discover issues and ensure corrective actions to keep us entrenched in the pursuit of excellence driven by our quality centric approach.



We set our benchmarks higher, we strive to achieve it!



Pavitra Water Solutions									
TOTAL PROJECT DOCUMENTATION RECORD									
Project No.	Project Name	Client	Location	Start Date	End Date	Status	Remarks	Project Manager	Project Engineer
001	01	02	03	04	05	06	07	08	09
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89	90	91	92	93	94	95	96	97	98
90	91	92	93	94	95	96	97	98	99
91	92	93	94	95	96	97	98	99	100

- ✓ Our systems use high quality components, instruments to ensure consistent performance
- ✓ Our quality of pipe installations ensure aesthetics, technical conformance & easy validation
- ✓ Our superior orbital welding quality and welding speeds exceeds expectations
- ✓ Service provided on time and every time to our customer's satisfaction.



Systemic quality management at Pavitra Water Solutions ensures high system uptime at your premises

www.pavitravatersolutions.com

OFFICE

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WORKS

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