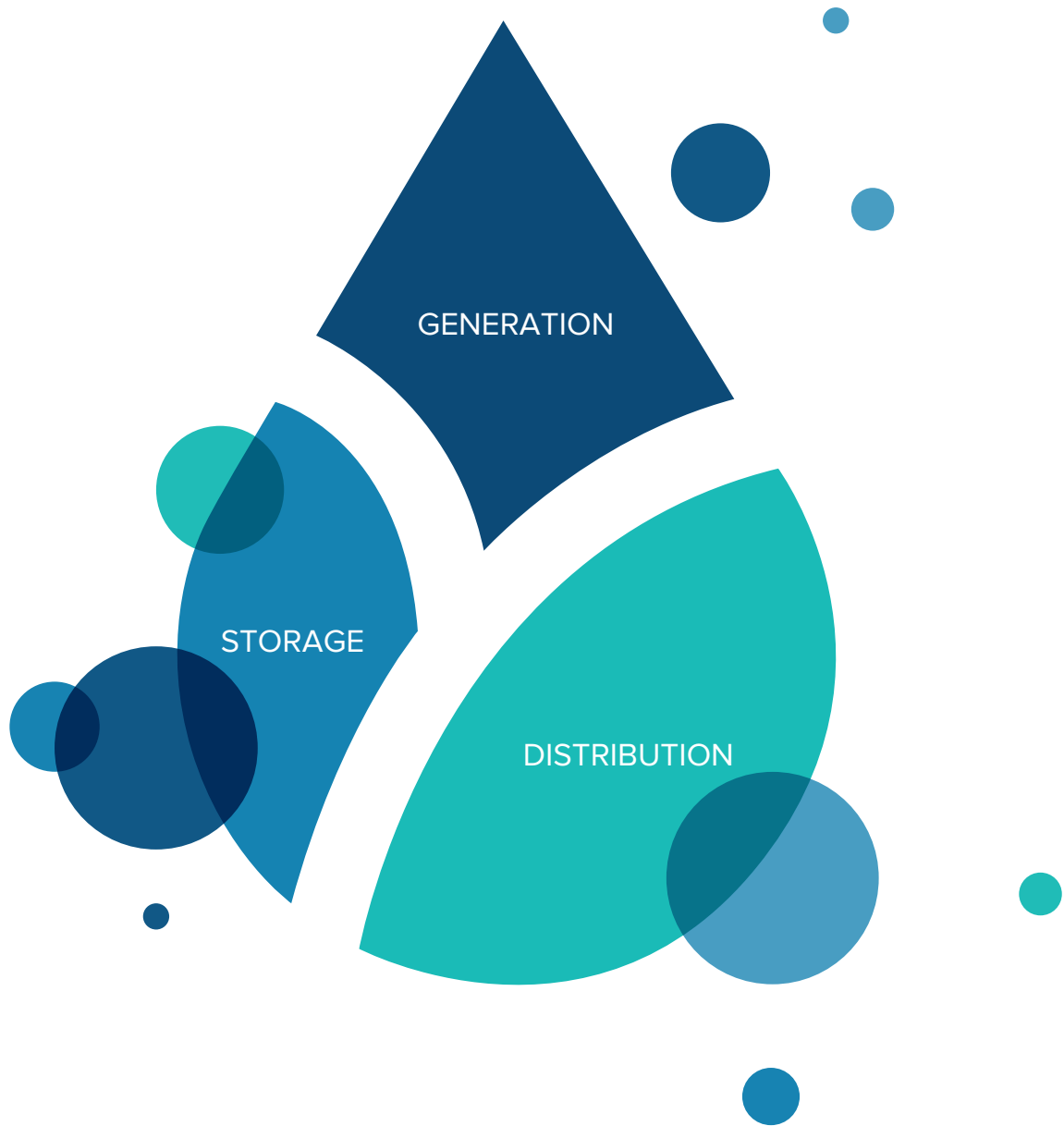


# Pharmaceutical Purified Water Systems

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**KOMAL**  
WHEN QUALITY MATTERS

## KOMAL, AS YOUR PARTNER

Komal Industries, Mumbai, is a research oriented engineering company, with an experience of more than 30 years, highly qualified promoters and manufacturing facility of over 20,000 sq. ft.

Komal, an expert in the field of water purification, offers solutions in the form of complete water purification plants, process line and components for Purified Water (PW) systems.

Komal offers a number of exceptional core competencies, differentiating us from the other players in the market.



**Customized  
Solution**



**Fast Track  
Execution**



**Proactive Customer  
Manager**



**Quality Assurance**

## PW GENERATION SYSTEM



Each KOMAL PURIFIED WATER (PW) system is custom made and designed considering all the parameters in minute details and with the same passion and dedication, whether its capacity is 100 l/h or over 25 m<sup>3</sup> /h. All PW systems meet EP , USP and other regulatory guidelines and ensure the production process, product quality and profitability. The systems are GMP-compliant and conform to FDA and ISPE requirements.

All KOMAL PW systems are pre-tested, validated, compact and ready-to-use. The compact, package unit designed on a stainless steel skid, are specifically adapted to the high TDS water and offers all purification technologies, such as:

- Automatic Sand and Activated carbon filters
- Duplex softening units with optional hot water sanitization
- Demineralization systems
- Ultrafiltration units with 6000 Daltons cutoff
- Hot water sanitisable electrodeionisation units

- UV Disinfectant (TOC reduction and Germicidal)
- Single or two-pass Reverse Osmosis
- ORBITAL welded SS316L tubes
- State-of –the-art PLC technology
- 21 CFR part 11 compliant control panels and validation software

## PW STORAGE AND DISTRIBUTION SYSTEM

After the purification of PW or HPW, engineering of the customer-specific storage and distribution system takes place , so product water can be delivered to each point of use in the sterile distribution system without recontamination. The entire distribution system is made of 316L stainless steel tubes, which are orbitally welded together with a surface quality from Ra <0.4 - 0.8µm . The designing of the PW distribution system requires detailed engineering towards achieving a sterile environment.

The features of the KOMAL PW storage tank and distribution system are:

- Storage tank – SS 316L, internally electropolished and externally matt finish
- Jacketed hydrophobic 0.2 micron Vent Filter
- Level transmitters
- Spray ball
- Frequency controlled and sanitary distribution pump
- Optional dual pump station
- High efficiency UV disinfection / ozone reduction
- Temperature compensated conductivity measurement
- Flow management through a vortex flow meter
- Ozonation
- On-line TOC measurement



## DATA LOGGING AND VALIDATION SOFTWARE

Buying from a sole source also simplifies validation. Komal supplies pharmaceutical equipment with a comprehensive validation support package including documentation that may be used for your equipment qualification (EQ), installation qualification (IQ), operational qualification (OQ), and performance qualification (PQ). The recommended operating ranges for each component are provided to establish alert and action limits. These recommended operating limits should be an integral part of the action plans in the OQ. Komal supports the customer during the PQ phase of validation by scheduling periodic visitor teleconferences to review the validation process.

As a part of the validation procedure, Komal offers a data logging and validation software as a standard feature for all its purified water systems. Some of its features are:

- Simulation of all the processes through a diagram and data logging of all the important parameters
- Multi-level login and password protection for different shifts
- Remote monitoring the whole system through a computer
- Capture data directly from equipment online
- Offline Data Download to PC; Data Back-up
- Menu driven graphical user interface
- Generates Log Reports, Special Alarm Reports and Graphical Analysis

# Connect with Us

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