Instruction Handbook for Installation, Operation and Maintenance.

Kent Deta Hai
Sabse Shudh Paani

Reverse Osmosis Water Purifier with Ultra-Filtration Process & TDS Controller
Mineral RO © 2005 - 2012 KENT RO SYSTEMS LTD., the process & purifier is patented vide patent no. 199716. KENT SUPER" design registration no. applied for.
Welcome to KENT

Dear Customer

Welcome to the world of KENT, leaders of water purification industry in India. With a KENT product you have all the reasons to smile, since at KENT we take pride in the quality and laboratory-tested performance of our products.

We are confident that your decision to own KENT SUPER+ Mineral RO™ will go a long way in serving you with purer and mineral enriched drinking water, thus keeping you and your family in good health. We assure you, that you will be satisfied with its trouble-free performance and quality which comes without any compromise.

This manual is an effort towards familiarizing you with the operation and maintenance of KENT SUPER+ Mineral RO™. Before operating the unit, please read it thoroughly and retain it for future reference. To ensure that the warranty of your water purifier is effective, fill up the enclosed warranty card and send the installation report within 15 days of purchase. Should you need further assistance, do not hesitate to contact your nearest KENT dealer or branch.

Best Wishes

KENT RO SYSTEMS LTD.
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KENT TECHNOLOGY
A Breakthrough in Water Purification*

KENT proudly presents KENT SUPER+ MINERAL RO™ - its new and advanced domestic water purifier which provides purer & healthier drinking water.

The futuristic KENT SUPER+, developed at KENT laboratory, broadly comprises of state-of-the-art RO+UF+TDS Control System. The initial purification by RO membrane having porosity as fine as 0.0001 microns reduces even the dissolved impurities (hard salts, heavy metals etc.). Double purification by UF membrane gives additional protection from deadly harmful microorganisms. Moreover, the patented TDS Control System intelligently retains essential natural minerals in purified water, thus, taking total care of your health and wellbeing.

Salient Features of KENT SUPER+ Mineral RO™

- Wall mounted design-best suited for domestic purpose
- Compact design-needs lesser space for installation
- Double purification by RO+ UF process
- TDS Control System™ allows adjustment of TDS level of purified water
- 8 litre storage capacity
- Storage tank with water level indicator
- Vertically mounted SMPS for protection
- RO and UF Membranes fused inside membrane housing to prevent tampering
- Push-fit components for leak-proof & maintenance-free performance
- Fully automatic operation with auto-on and auto-off function
- ABS construction for corrosion-free life span
- Suitable for Purification of Brackish/ Tap Water/ Municipal water Supply

Items in the Box

1. KENT SUPER+ Mineral RO™ Water Purifier : 01 No.
2. 3-Way Connector : 01 No.
3. S.S. Ball Valve : 01 No.
4. Food Grade Pipe ¼ inch (Blue) : 2.5 meters
5. Food Grade Pipe ½ inch (White) : 2.5 meters
6. Screws & Plastic Inserts : 02 Nos. each
8. Sticker Center Drill : 01 No.

* Tested & Certified by TUV-SUD South Asia (P) Ltd.
Important Instructions

Avoid exposure to direct sunlight and installation in damp areas.

Make sure that the temperature of water entering the purifier is within 10-35°C.

Make sure that the reject water pipe is not placed at a level higher than the system, otherwise reject water may flow backwards into the purifier.

Maximum distance between the water source and the purifier should not be more than 3 meters.

Avoid sharp bends in the pipe fittings. Do not bend or block the reject water pipe.

Do not confine the purifier in a cabinet.

In case of not using the purifier for more than two days, kindly switch off the power supply and drain the storage tank.

To keep the storage tank clean, it should be drained once in 15 days.

KENT GENUINE SPARE PARTS

Always use genuine Kent spares for optimum performance

Do not try to service the purifier on your own. Instead, call service technician for help.
Reverse Osmosis Process

Reverse Osmosis process, also known as hyper filtration, is the finest filtration process known till date. The process ensures reduction of particles as small as ions from a solution. Reverse Osmosis process uses a semi-permeable membrane to reduce salts from potable / brackish water. In Reverse Osmosis, water pressure is applied to the inlet impure water resulting into the squeezing of purer water from concentrated end of membrane towards the diluted end. Dissolved salts present in water in the form of charged ions get repelled by the RO membrane and are not allowed to pass through. Similarly, bacteria and germs are also blocked by the ultra fine pores of RO membrane. These rejected impurities, suspended on the concentrated end of membrane, are then washed away as a stream of waste water, thus preventing the membrane from clogging.

UF Process

Ultra Filtration is a separation process that uses membranes with pore size in the range of 0.1 to 0.01 micron. UF membrane remove high molecular-weight substances, colloidal materials and organic/inorganic polymeric molecules including bacteria and viruses. Low applied pressure are therefore sufficient to achieve high flux rates from an Ultra Filtration membrane.
Installation Report
Automatic Operation

- The purifier automatically shuts off when the storage tank is full.
- The purifier does not start when inlet water supply pressure drops below 0.3 kg/cm².
- The purifier automatically restarts when water level drops below the maximum.
- The purifier does not allow any water rejection in absence of electricity / when tank is full.

Installation Instructions

KENT SUPER™ Mineral RO™ is a convenient and easy-to-install wall mounting model.

Recommended Site Preparations:

- Single Phase 100 – 250 V AC, 50-60 Hz not more than 3m away from the point of installation.
- Raw water supply with ½ inch nipple not more than 3m away.
- Drain for reject water not more than 3m away.
- Installation space as per the dimensions of the purifier.
- Wall / plane surface for mounting screws and holding the machine. Avoid installation on wooden and metallic stands.
- For optimum inlet pressure, source water tank should be at least 10 ft. above the purifier installed.
- Install the purifier near a sink for easy availability of inlet and reject water lines.
- The system and installation must comply with state and local laws and regulations

Installation Procedure:

1. Screw in two 10x50 self-taping screws, 5.4 inches (138 mm) apart horizontally.
2. Wall mount the purifier with the help of slot holes given on back side.
3. Fasten the SS ball valve to ¼ inch port of 3-way connector.

4. Attach threaded end of 3-way connector to raw water supply and plug-off the other end or connect to a tap.

5. Now connect one end of white pipe to SS ball valve and other end to lower elbow fitting connector labeled as WATER IN, on the left side of purifier.

   Use white pipe for raw water supply

6. Connect one end of blue pipe to upper elbow fitting connector labeled as REJECT WATER and lead the other end to drain.

   Use blue pipe for reject water

7. Turn on the lever given on SS ball valve to initiate the water flow to purifier.

8. Allow the filters to pre-soak in water for 2-3 minutes.

9. Connect the power supply.

10. Installation is complete.
TDS Adjustment*

The unique TDS Control System enables customers to retain the contents of natural minerals (TDS) in purified water, as per their requirement.

- Turning the screw of the valve anti-clockwise, results in an increased mineral content.

We recommend keeping the TDS at lowest possible level but not below 50mg/l.

Starting Up the Purifier

- Switch on the power supply
- Allow the storage tank to fill to its maximum capacity**
- Switch off the power supply
- Open the drain plug present at the bottom of the storage tank and drain the tank completely. This would remove the residual dust particles present in different pipes and storage tank
- Plug back the drain plug
- Switch on the power supply
- Purifier is now ready to use

Recommended Usage of Rejected Water

Although the rejected water has high concentration of salts, it is absolutely clean and free from impurities such as chlorine, dirt, sand, etc. This rejected water usually goes down the drain but can be used for gardening purpose. The high concentration of salts and minerals accelerates the plant growth. Rejected water can also be used for cleaning utensils, mopping etc.

* Tested & Certified by TUV-SUD South Asia (P) Ltd.
** Tested or certified flushing time - 24hrs.
Maintenance

To ensure that the purifier operates at its BEST, a routine maintenance must be performed. Frequency of the maintenance will greatly depend upon the raw water quality and consumption of purified water.

- Storage tank must be drained once in 2 weeks. Open the drain plug present at the bottom of the storage tank and drain the tank completely. Plug back the drain plug and switch on the power supply.
- Replace sediment filter & activated carbon filter once in 12 months. It is recommended to change FRT along with the filters.
- Replace RO membrane once in a year.
- Replace UF membrane once in a year.

In the event of not using purifier for a long time (while going for a holiday, tour etc.), make sure that you disconnect the power supply, turn off the raw water supply and drain the storage tank.

The replacement time of consumables such as filters and membrane is dependant on the quality of raw water and the quantity of purified water consumed.

Use genuine Kent spares for optimum performance.

The reverse osmosis system contains a replaceable treatment component critical for the effective reduction of total dissolved solids and that product water is tested periodically to verify that the system is performing properly.

Replacement of spare parts are as under:

-20010  SP Inline Sediment Filter 8"
-2009   SP Inline Carbon Block Filter 8"
-2002   SP RO Membrane Welded 8" Housing
-2004   SP UF Membrane Welded 8" Housing
-2018   SP FRT 550

Note: Filters and membrane are consumables. Their replacement time is dependent on the quality of raw water and water consumption. They are not covered under the warranty. However, if a filter chokes within six months and a membrane within a year, it will be cleaned/ repaired/ replaced free of cost. Changing the filters and system inspection is available on call. The treatment capacity of RO membrane will reduce with time due to clogging of pores of membranes.

"This reverse osmosis system contains a replaceable component critical to the efficiency of the system. Replacement of the reverse osmosis component should be with one of identical specifications as defined by the manufacturer, to ensure the same efficiency and contaminant reduction performance."
# Technical Specifications

<table>
<thead>
<tr>
<th>Model Name</th>
<th>KENT SUPER+ Mineral RO™ Water Purifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No.</td>
<td>11005</td>
</tr>
<tr>
<td>Applications</td>
<td>Suitable for Purification of Brackish/Tap Water/ Municipal Corporation Water.</td>
</tr>
<tr>
<td>Purification Production Rate</td>
<td>15 L/hr. or 0.25 L/min*</td>
</tr>
<tr>
<td>Body Material</td>
<td>ABS Food Grade Plastic</td>
</tr>
<tr>
<td>Mounting</td>
<td>Wall Mounted</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>L 380 W 270 H 505</td>
</tr>
<tr>
<td>Inlet Water Pressure/Temp (Min.)</td>
<td>0.3kg / cm² or 4.267psi / 10°C</td>
</tr>
<tr>
<td>Inlet Water Pressure/Temp (Max.)</td>
<td>3kg / cm² or 42.67psi / 35°C</td>
</tr>
<tr>
<td>Filter Cartridge</td>
<td>Sediment, Activated Carbon, UF Filter</td>
</tr>
<tr>
<td>Membrane Type</td>
<td>Thin Film Composite RO</td>
</tr>
<tr>
<td>UF Membrane</td>
<td>0.1 – 0.01 Micron</td>
</tr>
<tr>
<td>Net Weight</td>
<td>7.350 kg</td>
</tr>
<tr>
<td>Storage Capacity</td>
<td>8 L</td>
</tr>
<tr>
<td>Maximum Duty Cycle</td>
<td>75 L/day</td>
</tr>
<tr>
<td>UF Filter</td>
<td>Ultra Filtration Membrane</td>
</tr>
<tr>
<td>Booster Pump Voltage</td>
<td>24V DC</td>
</tr>
<tr>
<td>Total Power Consumption</td>
<td>60 W</td>
</tr>
<tr>
<td>Input Power Supply</td>
<td>Single Phase 100 – 250 V AC, 50-60 Hz</td>
</tr>
</tbody>
</table>

* Purification capacity tested on raw water having TDS level of 750 ppm at room temperature.

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## Performance Data Sheet - KENT Super+ Mineral RO™ Water Purifier

This system has been tested according to NSF/ANSI 58 for reduction of the substances listed below. The concentration of the indicated substances in water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified in NSF/ANSI 58.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Influent challenge concentration mg/L</th>
<th>Maximum permissible product water concentration mg/L</th>
<th>Minimum % reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>750 ± 40 mg/L</td>
<td>187</td>
<td>93.6%</td>
</tr>
<tr>
<td>Arsenic (+5)</td>
<td>0.30 ± 10%</td>
<td>0.010</td>
<td>98.7</td>
</tr>
<tr>
<td>Barium</td>
<td>10.0 ± 10%</td>
<td>2.0</td>
<td>97.7</td>
</tr>
<tr>
<td>Fluoride</td>
<td>8.0 ± 10%</td>
<td>1.5</td>
<td>96.3</td>
</tr>
<tr>
<td>Lead</td>
<td>0.15 ± 10%</td>
<td>0.010</td>
<td>99.3</td>
</tr>
<tr>
<td>Nitrate / Nitrite</td>
<td>30 ± 10%</td>
<td>10</td>
<td>73.5</td>
</tr>
</tbody>
</table>

*Do not use with water that is microbiologically unsafe or of unknown quality w/o adequate disinfection before or after the system.

"Efficiency rating means the percentage of the influent water that is available to the user as Reverse Osmosis treated water under operating condition that approximate typical daily usage."
“Testing was performed under standard laboratory conditions, actual performance may vary”

“This system is acceptable for treatment of influent concentrations of no more than 27 mg/L nitrate and 3 mg/L nitrite (in combination measured as N), and is contingent on the proper functioning of the booster pump included as part of this system to deliver a minimum pressure on the membrane of at least 40 psi”

“This system has been tested for the treatment of water containing pentavalent arsenic (also known as As (V), As (+5), or arsenate) at concentrations of 0.050 mg/L or 0.30 mg/L or less. This system reduces pentavalent arsenic but may not remove other forms of arsenic. This system is to be used on water supplies containing detectable free chlorine residual or on water supplies that have been demonstrated to contain only pentavalent arsenic. Treatment with chloramines (combined chlorine) is not sufficient to ensure complete conversion of trivalent arsenic to pentavalent arsenic. Please see the Arsenic Facts section of the performance data sheet for further information”.

Arsenic Facts

Arsenic (As) is a naturally occurring contaminant found in many ground waters. It generally occurs in two forms (valences or oxidation states): pentavalent arsenic (also known as As(V), As(+5), or arsenate) and trivalent arsenic (also known as As(III), As(+3), or arsenite). In natural ground water, arsenic may exist as trivalent arsenic, pentavalent arsenic, or a combination of both. Although both forms of arsenic are potentially harmful to human health, trivalent arsenic is considered more harmful than pentavalent arsenic. More information about arsenic and its toxicity can be found on the U.S. Environmental Protection Agency website at http://www.epa.gov/safewater/arsenic.html.

This system is designed to remove only pentavalent arsenic. This treatment system does not provide a feature for conversion of trivalent arsenic to pentavalent arsenic. The system may remove some trivalent arsenic, however, it has not been evaluated for its ability to remove trivalent arsenic.

Trivalent arsenic is generally more difficult to remove from drinking water than pentavalent arsenic. Trivalent arsenic can be converted to pentavalent arsenic in the presence of an effective oxidant such as free chlorine. The arsenic in water containing detectable free chlorine or that has been treated with another effective oxidant will be in the pentavalent arsenic form. Treatment with chloramine (combined chlorine) is not sufficient to ensure complete conversion of trivalent arsenic to pentavalent arsenic.

Consumers using public water supplies can contact their utility to verify whether free chlorine treatment chemicals are being used. Private water supplies and waters that do not have detectable free chlorine residuals should be analyzed to determine the form(s) of arsenic present and the potential need for oxidation of trivalent arsenic to pentavalent arsenic.

Arsenic does not generally impart color, taste, or smell to water, therefore, it can only be detected by a chemical analytical test. Public water supplies are required to monitor treated water for total arsenic (trivalent arsenic plus pentavalent arsenic) and the results are available to the public from the utility. Consumers using private water sources will need to make arrangements for testing. A total arsenic test usually costs about $15-$30 and it is recommended the test be conducted by a certified laboratory. Local health departments or environmental protection agencies can help provide consumers with a list of certified laboratories. Some laboratories may also be able to analyze specifically for (speciate) the form(s) of arsenic present in a water sample if requested.

This treatment system was tested under laboratory conditions as defined in NSF/ANSI 58 Drinking Water Treatment Units – Health Effects and was found to reduce 0.30 mg/L of pentavalent arsenic in the test water to less than 0.010 mg/L under standard testing conditions. Actual performance of the system may vary depending on specific water quality conditions at the consumer’s installation. Following installation of this system, the consumer should have the treated water tested for total arsenic to verify arsenic reduction is being achieved and the system is functioning properly.

The arsenic removal component of this system must be replaced at the end of its useful life of 1-2 years. The replacement component, 20010 SP Inline Sediment Filter 8”, 20009 SP Inline Carbon Block Filter 8”, 20002 SP RO Membrane Welded 8” Housing, 20004 SP UF Membrane Welded 8” Housing and 20018 SP FRT 550 can be purchased directly from the manufacturer Kent RO Systems. Ltd.
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