

# Merlin™

## On-Demand Reverse Osmosis Drinking Water System Model “Merlin I”

### Performance Data Sheet



**This system has been tested according to NSF/ANSI 58 for reduction of 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. The substances are: Arsenic, Barium, Cadmium, Chromium (Hexavalent), Chromium (Trivalent), Copper, Fluoride, Lead, Nitrate, Nitrite, Radium 226/228, Selenium and TDS.**

This reverse osmosis system contains replaceable components critical for effective performance. It is the user's responsibility to, and the manufacturer strongly recommends that the user, periodically have the product water tested to verify the system is performing satisfactorily by the system's installing dealer every six months. This system shall only be used for arsenic reduction on chlorinated water supplies containing detectable residual free-chlorine at inlet to the system.

If Merlin I filters and membrane elements are not used, health related contaminant reduction claims are invalid.

| <b>SPECIFIC CONTAMINANT PERFORMANCE</b>  |                                 |                                 |                                 |                            |
|--|---------------------------------|---------------------------------|---------------------------------|----------------------------|
| <b>Contaminant</b>   | <b>Influent<br/>(avg. mg/L)</b> | <b>Effluent<br/>(ave. mg/L)</b> | <b>Effluent<br/>(max. mg/L)</b> | <b>Ave %<br/>Reduction</b> |
| Arsenic <sup>1</sup>   | 0.049                           | 0.00265                         | 0.00612                         | 94.6%                      |
| Barium   | 11.1                            | 0.189                           | 1.9                             | 98.3%                      |
| Cadmium  | 0.0307                          | 0.0000704                       | 0.0000704                       | 99.8%                      |
| Chromium (VI)  | 0.353                           | 0.00742                         | 0.0147                          | 97.9%                      |
| Chromium (III)   | 0.312                           | 0.000624                        | 0.00453                         | 99.8%                      |
| Copper   | 3.22                            | 0.0721                          | 0.0721                          | 97.8%                      |
| Fluoride   | 8.11                            | 0.51                            | 0.65                            | 93.7%                      |
| Lead   | 0.159                           | 0.000628                        | 0.000628                        | 99.6%                      |
| Nitrate/Nitrite (as N) <sup>2</sup>  | 28.96                           | 6.26                            | 7.55                            | 78.4%                      |
| Radium 226/228   |                                 |                                 |                                 |                            |
| Selenium   | 0.113                           | 0.00249                         | 0.003                           | 97.8%                      |
| Total Dissolved Solids (TDS)   | 726                             | 74.8                            | 94.8                            | 89.7%                      |
| <p><i>1 – 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 less. This system reduces pentavalent arsenic, but may not remove other forms of arsenic. This system is to be used on water supplies containing a detectable free-chlorine residual at the system inlet 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 this performance data sheet.</i></p> <p><i>2 – 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 certified for nitrate/nitrite reduction only for water supplies with a pressure of 40 psi (2.76 bar) or greater.</i></p> <p>Testing performed under standard laboratory conditions. Actual results may vary.</p> |                                 |                                 |                                 |                            |

| <b>SYSTEM PERFORMANCE RATING:</b>   |  |
|---|--|
| Product Water Production:   | 748 Gallons Per Day (2,831 Liters Per Day) |
| Average System Recovery:  | 23.70%                                     |
| Average System Efficiency:  | 23.70%                                     |
| <p><i>Average System Recovery is the percentage of the influent water to the membrane portion of the system that is available to the user as reverse osmosis treated water when operated as designed (without a pressurized storage tank).</i></p> <p><i>Average System Efficiency rating is the percentage of the influent water to the system that is available to the user as reverse osmosis treated water under operating conditions that approximate typical daily usage.</i></p> <p><i>System efficiency rating is identical to recovery rating when the system is tested without a storage tank or when the storage tank is bypassed.</i></p> |  |

| <b>SYSTEM SPECIFICATIONS AND OPERATING PARAMETERS:</b> |                   |                   |
|--|-------------------|-------------------|
| <b>Minimum and Maximum Operating Conditions:</b>       |                   |                   |
| <b>Inlet Water Condition</b>                           | <b>Minimum</b>    | <b>Maximum</b>    |
| Pressure   | 40 psi (2.76 bar) | 80 psi (5.52 bar) |
| Temperature  | 40 F (4.44 C)     | 100F (37.78 C)    |
| TDS  | 50 mg/L           | 2,000 mg/L        |
| Hardness   | 0 mg/L            | 171 mg/L          |
| Chlorine   | 0.0 mg/L          | 1.0 mg/L          |
| Iron   | 0.0 mg/L          | 0.1 mg/L          |
| Manganese  | 0.0 mg/L          | 0.05 mg/L         |
| PH   | 4.0               | 10.0              |

*Actual system performance will vary depending on varying water temperature and pressure, TDS levels and inlet water chemistry. Operating the system in water conditions outside the minimum or maximum operating parameters may result in reduced system performance and membrane element life.*

*Note: Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.*

### **RO SYSTEM & FILTRATION COMPONENTS:**

**Merlin I RO System:** Complete System – Part #1205052

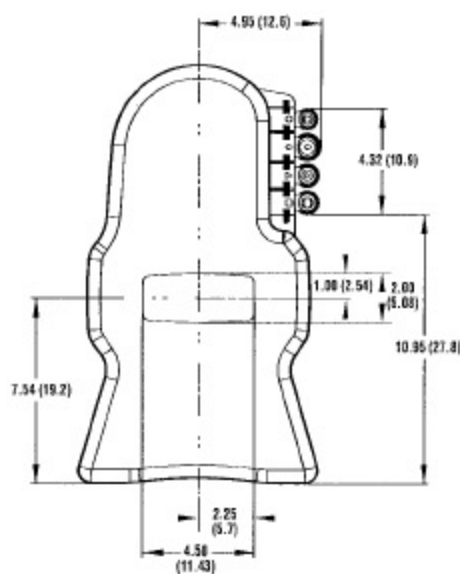
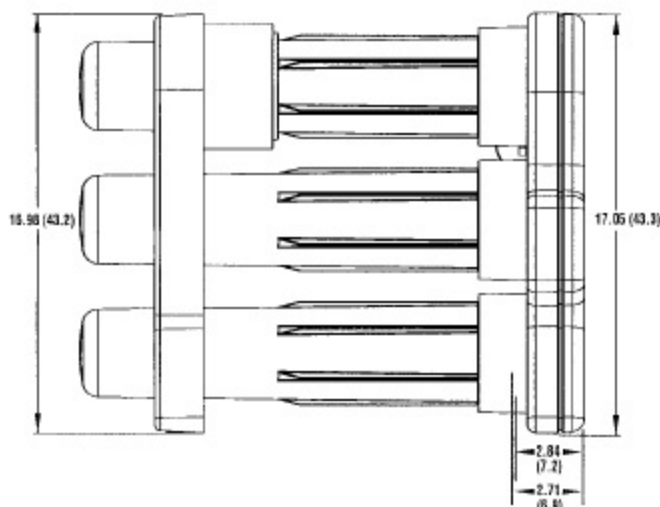
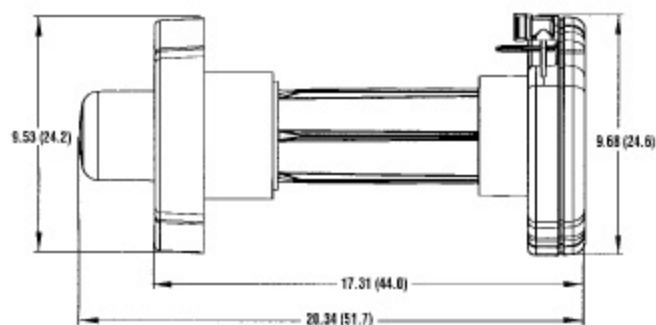
**Sediment/Carbon Prefilter:** 5 Micron/Activated Carbon Filter – Part #1237460

**Membrane Element(s):** Thin Film Composite Reverse Osmosis – Part #1238342

**Carbon Post Filter:** Granular Activated Carbon – Part #1244746

- *Refer to Owner's Manual for installation instructions and servicing/replacement component recommendations.*

# DIMENSIONS



## Performance Specifications<sup>1, 2</sup>

|                                   | Minimum                  | Maximum                  | Average                  |
|-----------------------------------|--------------------------|--------------------------|--------------------------|
| Permeate Flow Rate                | 0.33 gals/min (1.25 Lpm) | 0.75 gals/min (2.84 Lpm) | 0.50 gals/min (1.89 Lpm) |
| TDS Rejection (NaCl) <sup>3</sup> | 90%                      | 99%                      | 93%                      |

## Minimum and Maximum Operating Conditions

| Condition         | Minimum           | Maximum             |
|-------------------|-------------------|---------------------|
| Inlet Pressure    | 40 psi (2.76 bar) | 80 psi (5.52 bar)   |
| Inlet Temperature | 40°F (4.44°C)     | 100°F (37.78°C)     |
| Inlet TDS         | 50 mg/L           | 2,000 mg/L          |
| Inlet Hardness    | 0 mg/L (0 grain)  | 171 mg/L (10 grain) |
| Inlet Chlorine    | 0 mg/L            | 1.0 mg/L            |
| Inlet Iron        | 0 mg/L            | 0.1 mg/L            |
| Inlet Manganese   | 0 mg/L            | 0.05 mg/L           |
| Inlet pH          | 4                 | 10                  |
| Inlet Turbidity   | 0                 | 1 NTU               |

1. Based on 50 psi (3.44 bar), 77°F (25°C), 750 mg/L NaCl, 23.7% Recovery

2. System is designed for use on potable water systems only.

3. Specifications based on GE Osmonics testing data. For complete WQA test results to ANSI/NSF 58 standard, see the Merlin Performance Data Sheet P/N 1263717.