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# STERILIZATION DEVICES

Water and Energy Saving Systems

Water & Energy-Efficient Technology

Save Water and Energy, Save Environment

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**ISO** 13485 6





**SZUTEST** 

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# ADOUT US

Sümer A.Ş. was established in 1981 in Ankara to prove services in the medical device sector. It has aimed advancement since the day of its establishment by also taking growth and compliance with the contemporary technologies and protecting the environmental conditions. Our manufacturing takes place in an area of  $25.000 \text{ m}^2$  in Ankara Organized Industrial Zone.

Our Firm is following the innovations in its sector and in abroad through its research and development unit and its application staff with a strong infrastructure of engineers, and is continuing to produce devices it had developed in computer environment based on such innovations with high technology and to contribute their development so as to be most beneficial for the Turkish medicine.

With this purpose, our Firm is strictly following the "Quality Management" principles and rules from design of the products to the after-sale servicing.

Our Firm has been currently certificated for compliance with ISO 9001 quality management system, ISO 13485 medical device quality management system certificate and ISO 14001 environment management system certificate and with product certificates under MDD 93/42/EEC Medical Devices Directive and PED 2014/68/EUPressurized Equipment certificate. Furthermore, our steam sterilizers, and disinfection and washing devices have been certificated by the German accredited body.

Our Firm is successfully implementing several projects supported by Tübitak, KOSGEB, and Ankara Development Agency. SÜMER A.Ş. has been awarded with the following: Ankara Industry Chamber Award for 2012, 2011 R&D Award, 2012 Success Award.

Our Firm possesses the following certificates; CE Certificates under the following directives: ISO 9001, ISO 13485, ISO 14001 Quality Management System, MDD 93/42/EEC Medical Devices, PED 2014/68/EUPressurized Equipment



### **Our Vision**

To make the Sümer brand a global brand to make our Firm remembered first in the sector.

### **Our Mission**

Our main task is to create designs with competition power in the global sense by taking the priorities of the sector into consideration and being respectful to the environment and people and giving the first priority to the wishes and expectations of customers, and also to produce innovative technological medical products by meeting all the national and international legal requirements.

#### **Our Basic Values**

- We are bound up with the Medical Ethical Rules,
- We are people-oriented,
- We respect environment,
- We are creative,
- We are customer-oriented,
- We are innovative,
- We are pro-active,
- We believe in the team spirit.

## Water- Efficient Technology

Most modern autoclaves utilize a large amount of water in order to reduce the discharge temperature to drain and comply with local building codes. The Sumer Water- Efficient Technology has been developed to drastically reduce the water consumed by the autoclave. Water- Efficient Technology systems operate without the use of electricity. Water- Efficient Technology can be installed on new sterilizers or retrofitted onto existing sterilizers.

#### Water Use Reduction Strategies:

Technology is available to retrofit existing sterilizers to reduce water consumption. The sections below focus on water efficient retrofits, as well as recommendations for new sterilizers. Some options for water savings during quenching condensate/effluent water include (these options apply for all sterilizers, regardless of whether or not they have a vacuum system):

#### 1) Temperature Actuated Valve

A temperature actuated valve measures the temperature of the effluent water and allows cold water for quenching only when needed (when water exceeds 60°C). This device prevents water from running 24/7 when the line is not in need of quenching. Water usage from one steam sterilizer can be reduced from approximately 5678 lt per day (3,79 lt per minute, 24 hours/day) to approximately 946 lt per day with the installation of a temperature actuated valve (Approximately 85% reduction). Proper maintenance of sterilizers prevents excessive water use. Some newer sterilizers come with the option of a built-in temperature actuated valve for quenching.

#### 2) Cooling Reservoir System

A cooling reservoir system (water miser) directs the hot effluent from the sterilizer into a reservoir with a temperature probe inside. When the probe senses that the water temperature exceeds  $60^{\circ}$ C, a temperature actuated valve adds cold water to the tank. When the tank is full, cooled water (below  $60^{\circ}$ C) flows to the sewer.

# Water- Efficient Technology



Diagram of a Cooling Water Reservoir

• For the vacuum creation process in dynamic air removal discussed previously, three main options are available for increasing water efficiency (these measures only apply to sterilizers that use dynamic air removal):

#### 1) Liquid Ring Vacuum Pump

Replacing the steam sterilizer's water ejector with a liquid ring vacuum pump (for vacuum creation) can greatly reduce water consumption during the pre-vacuum and dry cycles. The liquid ring vacuum pump eliminates the need to have water flowing through the ejector and directly to the sewer; water used to create a vacuum can be reduced by up to 75 percent with this type of modification. When purchasing a new sterilizer, selecting a model with an electric liquid ring vacuum pump is essential for water efficiency.

### Water- Efficient Technology

#### 2) Second Water Ejector with a Reservoir and Pump

If a sterilizer uses a water ejector to create vacuum, some of the water passing through the ejector can be captured and reused via installation of a second water ejector with a reservoir and pump. Water from the ejector can be captured in the added reservoir and allowed to cool through ambient air circulation, the addition of cold domestic water, or use of a heat exchanger. The water can then be reused for vacuum creation. This method reduces water use for sterilizer vacuum creation by approximately 50 percent. When purchasing a new sterilizer without a liquid ring vacuum pump, a model with a second ejector and a reservoir should be considered for increased water efficiency.

#### 3) Recirculating water lines with a heat exchanger

A recirculating water line with a heat exchanger eliminates the need for effluent quenching; the effluent water that is cooled through the heat exchanger can be reused for vacuum creation. Hot effluent water from the sterilizer is piped into a large holding tank; from the tank the water goes through a heat exchanger. The heat exchanger uses a conductive panel to transfer heat from the effluent water to a closed-line of utility-provided chilled water (which is recirculated and cooled by the utility). Once the temperature of the effluent water has been reduced, it is recirculated and reused for vacuum creation. The effluent water never comes in direct contact with the chilled water. When the holding tank becomes full, water is discharged to sewer (temperature will be below the 60°C sewer limit). This option is the most water efficient, reusing condensate/effluent water from the sterilization process and eliminating the need for additional water to be used for quenching or vacuum creation.



Diagram of Recirculating Water Lines with a Heat Exchanger.

### Certificates and Brand Registry Documents

We believe that the way to the summit passes through high-quality and reliable manufacturing.







 
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