



YOUR NEW  
STERILE WATER  
SYSTEM



ELANDER SYSTEMS AB  
SWEDEN

# WFI DISTILLATION & PURE STEAM GENERATION

## SHARE YOUR WORRIES WITH OUR TEAM

Distillate quality, high efficiency and reliability are key aspects of your new WFI distillation unit, the heart of your sterile, production system.

Since more than 30 years we have been in the front line of the development of WFI Distillations Units & Pure Steam Generators making important design contributions.

### KEY MILSTONES

- 1981** We develop the 1st modern Multi-effect distiller based on Low Steam Velocity.
- 1993** Modernizing the cyclone separation and the proportional regulation.
- 1995** Introducing the 1st COMBI unit to the market for simultaneous production of WFI & PS at 100%.
- 2016** Creating the new AQUA-ZERO.

The installations including the clean rooms, WFI & Pure Steam units with tanks and loop systems are carefully planned by the skilled design department with experiences from around the world.

Throughout the entire installations only high quality pharma components & materials from well know suppliers are used. The installations are designed to ensure your long term trouble free production, leading to important savings in:

- Investment
- Installation
- Validation
- Service

All units pass factory FAT testing before delivery, assuring the right function and capacity as per your specified order. The documentation is complete for the validation of the equipment at site. The units and the entire systems are ready installed and commissioned by our specialists. SAT documentation with IQ/OQ is provided when ordered.

We invite you to send your general idea and specifications to be able to present the best solutions for you new facilities, as per the latest 'state-of-the-art'.

## THE RIGHT SYSTEM DESIGN IS YOUR BEST GUARANTEE





## WFI AND PURE STEAM FOR LIFE SCIENCE

Use our experience for your new  
sterile system

AQUA-ZERO represents our latest design where the Energy Saving Distillation has been combined with Pure Steam Generation for high flexibility and cost reduction.

Our design with improved quality and operation security was first introduced by Elander in 1981. Of course, over the years, our know-how has lead to further developments of Aqua-Zero where our basic, secure design still means:

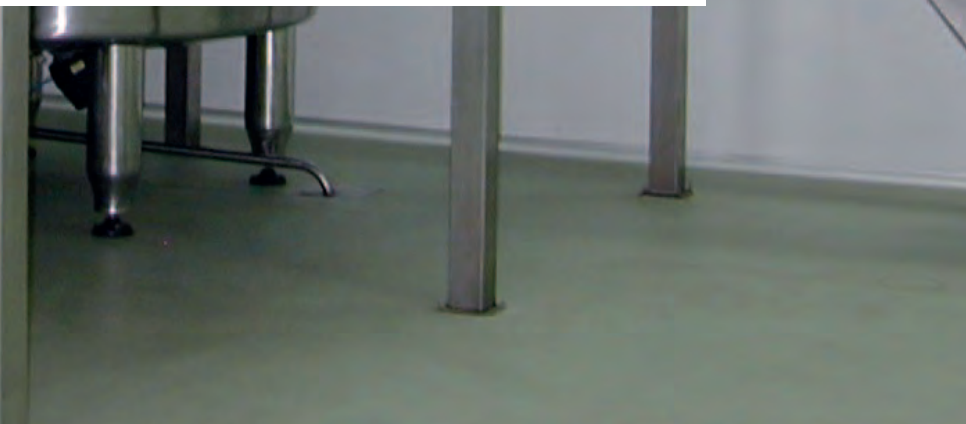
- Low steam velocity
- Cyclone Separation
- Proportional media regulation
- High accessibility

Our standard steam heated multi-effect units are available up to 7000 L/h WFI production with 7 or 8 columns. Pure Steam generation at almost any capacity can be supplied as stand-alone units or for simultaneous production with WFI in the COMBI units.

Electrically heated units are available up to 500 L/h. Higher capacities on request.

The units comply with international standards as cGMP, USP, ISPE, ASME BPE and other, international regulations. Typical quality values in regular production of WFI distillate and condensed Pure Steam are:

Conductivity:	<0,5 $\mu$ S/cm, 25° C
Micro Organisms:	<0,01 CfU /ml
Endotoxines:	<0,125 EU /ml
TOC	≤50 ppb



## OUR MULTI-EFFECT STANDARD CAPACITIES AT YOUR DISPOSAL

Other capacities, number of columns and sizes are available at your specified request.

### STEAM HEATED STILLS = SH

Type & Columns	Heating Steam Pressure	Capacity WFI L/h	Capacity PS COMBI 2-3 bar g
SH-120 -3 / -4	3-8 bar g (143° - 175°C)	120 - 250 L/h	As per request
SH-200 -3 / -4	3-8 bar g (143° - 175°C)	200 - 440 L/h	As per request
SH-300 -4	3-8 bar g (143° - 175°C)	300 - 700 L/h	As per request
SH-500 -4 / -5	3-8 bar g (143° - 175°C)	500 - 1100 L/h	As per request
SH-700 -4 / -5 / -6	3-8 bar g (143° - 175°C)	700 - 1500 L/h	As per request
SH-1000 -5 / -6	4-8 bar g (152° - 175°C)	1000 - 2200 L/h	As per request
SH-1500 -5 / -6	4-8 bar g (152° - 175°C)	1500 - 3300 L/h	As per request
SH-2000 -6 / -7	5-8 bar g (159° - 175°C)	2000 - 4000 L/h	As per request
SH-3000 -6 / -7	5-8 bar g (159° - 175°C)	3000 - 6000 L/h	As per request

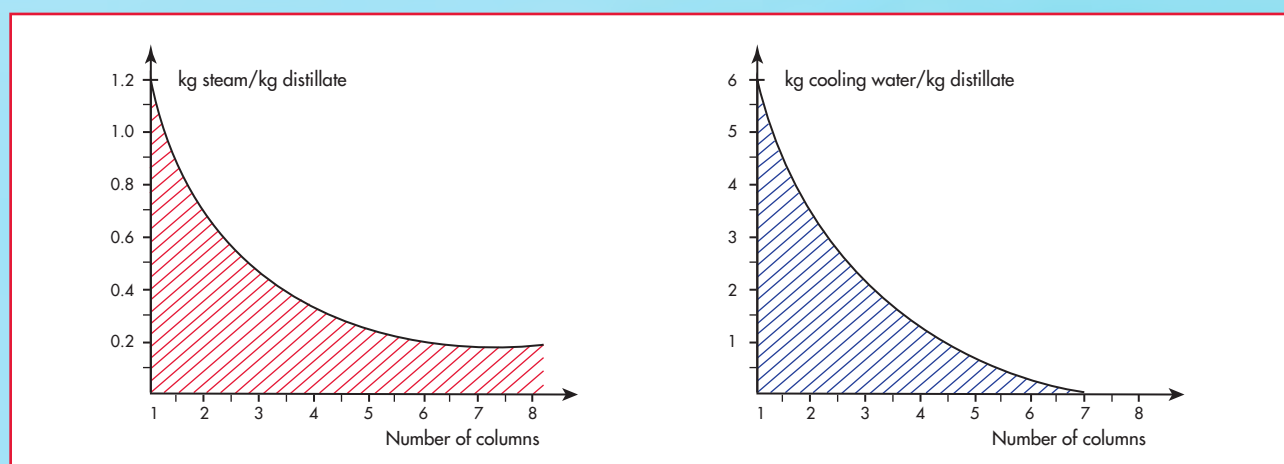
All figures have a tolerance of +/-5%.

### ELECTRICALLY HEATED STILLS = EH

Type & Columns	Consumption kWh/h (Connection +20%)	Capacity WFI L/h	Capacity PS COMBI 2-3 bar g
EH-100 -3 / -4	29 (35)	100 / 130	As per request
EH-150 -3 / -4	44 (53)	150 / 200	As per request
EH-300 -4 / -5	66 (79)	300 / 390	As per request
EH-500 -5 / -6	80 (90)	430 / 500	As per request

All figures have a tolerance of +/-5%

Consumption of heating steam and cooling water to number of columns.



## CONVINCING DESIGN SINCE 1981



SH-1000-6, steam heated



EH-100-3 COMBI, electrical

### Low steam velocity & droplet separation

We introduced low steam velocity in combination with cycloning in modern Multi-effect distillation to improve the WFI quality, drastically reducing the risk of carry-over of droplets and particles to the clean side. The AQUA-ZERO design has been in use for over 30 years ensuring an excellent WFI and Pure Steam quality.

### Float type heat exchangers

The heat exchangers are fully submerged in the boiler water ensuring tensionless operation and no dry spots thereby avoiding micro cracks and material exhaustion. The design allows for the equal expansion/contraction of the materials.

### Proportional media regulation

Automatic regulation of water and steam assure a trouble-free operation even at changing conditions as e.g. during simultaneous COMBI production of WFI and Pure Steam.

### Flexibility & capacity

Client adapted designs where the Pure Steam generation is 'tailor made' to your individual needs resulting in highest production flexibility.

### High accessibility for service

The skid mounted units are designed for easy access and service of all components.

### Commissioning and after sales

Our specialists and technical team will support you all the way from design, order, installation, commissioning and with after sales service to guarantee a trouble free production.



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