

Production WFI Stills & PS generators



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AQUA-NOVA® Water Stills and Pure Steam Generators represent more than 25 years of experience within WFI distillation and Pure Steam production. Distillation has proved to be by far the most reliable way of producing Water For Injection where the boiling of water at temperatures over 100°C is an essential security factor.

AQUA-NOVA® 3rd generation multi-effect stills have a number of design features to achieve an optimised function and a safe distillate quality according to the latest editions of USP and EP for Water For Injection.

Of special importance is our unique droplet separation in four steps:

- Baffle section keeping droplets down.
- Low steam velocity.
- Cyclone separation with 180° direction change.
- Direct cyclone discharge to drain.

Our “float” type heat exchanger design minimizes thermal stress, avoiding the formation of micro cracks. The used thermosiphon effect gives high efficiency and reduces scale build-up should the feed water quality deteriorate.

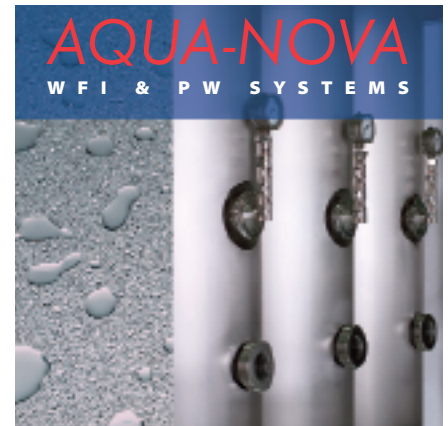
The first column can produce Pure Steam and with our TWO-in-ONE design, WFI and Pure Steam is produced at the same time thus avoiding to invest in an extra Pure Steam Generator.

PLC AUTOMATED STANDARD FUNCTION

- Automatic start/stop on signal from the WFI tank.
- Discharge of sub-standard distillate during start, operation and stop.
- Automatic valve regulation of heating steam, feed and cooling waters as well as compressed air.
- Automatic surveillance & alarms of critical process values.

EXAMPLE OF OPTIONALS

- Automated or manual valves for Pure Steam production.
- Pure Steam sample condenser.
- Sterile air vent filter and close off.
- Self sterilisation cycle and valves.
- Heat steam safety valve & high pressure switch.
- Electro polished internal surfaces.
- Boroscopy of internal welds.



AQUA-NOVA S-500-4, steam heated.



AQUA-NOVA E-100-3, electrically heated.

FACTORY ACCEPTANCE TESTING

All AQUA-NOVA equipment are production tested at our factory before delivery. The tests are documented.

The software is developed as per GAMP specifications.

When ordered full Pre IQ and OQ documentation will be supplied with the machines, including calibration documents.

The standard delivery documentation consists of:

- Authorised pressure vessel drawings with material and weld certificates.
- Mechanical component documentation and manuals.
- Electrical and instrument documentation and manuals.
- Machine operation manual.

MULTI-EFFECT STILLS, steam heated

TYPE & COLUMNS	PRESSURE	CAPACITY Lt/h
S-100-3 and 4	3-8 bar g	100-200
S-200-3 and 4	3-8 bar g	200-400
S-300-4 and 6	3-8 bar g	300-600
S-500-4 and 6	3-8 bar g	500-1100
S-1000-5 and 6	4-8 bar g	1200-2100
S-2000-5 and 6	4-8 bar g	2800-4100
S-3000-6 and 8	5-8 bar g	4000-6000
S-4000-6 and 8	5-8 bar g	5800-8000

MULTI-EFFECT STILLS, electrically heated

TYPE & COLUMNS	CONNECTION	CAPACITY Lt/h
E-100-3	30 kW	100
E-200-5	38 kW	200
E-300-5	58 kW	300
E-500-6	70 kW	500

SINGLE EFFECT STILLS

TYPE & COLUMNS	CONNECTION	CAPACITY Lt/h
S-50/150-C	steam, 3-6 bar g	50-150
E-50-C	electricity 35 kW	50

PURE STEAM GENERATORS, steam heated 6-8 bar g

TYPE	PS PRESSURE	CAPACITY Kg/h
SG - 200-1,	2-3 bar g	60-120
SG - 300-1,	2-3 bar g	120-240
SG - 400-1,	2-3 bar g	270-540
SG - 500-1,	2-3 bar g	500-1000
SG - 600-1,	2-3 bar g	900-1600
SG - 700-1,	2-3 bar g	1400-2100
SG-1200-1,	2-3 bar g	2800-5000

Other equipment request.



AQUA-NOVA S-200-4
Factory test Pre IQ.



AQUA-NOVA S-50/150-C, Steam heated, fully automatic Single-effect Still and Pure Steam Generator.