



# Steam Generators



# BMT worldwide

## QUALITY, RELIABILITY, INNOVATION

BMT is a member of the MMM Group, one of the world's leading suppliers of sterilization products with offices in over 20 different countries and manufacturing facilities in the USA, Germany and Czech Republic. Since the beginning in 1954, the group's sterilization products have been placed in Pharmaceutical, Laboratory and Healthcare facilities all over the world. Special attention is given to quality, reliability, innovation and efficiency of every unit. Customer service excellence is our commitment to your organization and the key to our success.

## flexible solutions for your steam needs

### BUILT TO YOUR EXACT NEEDS

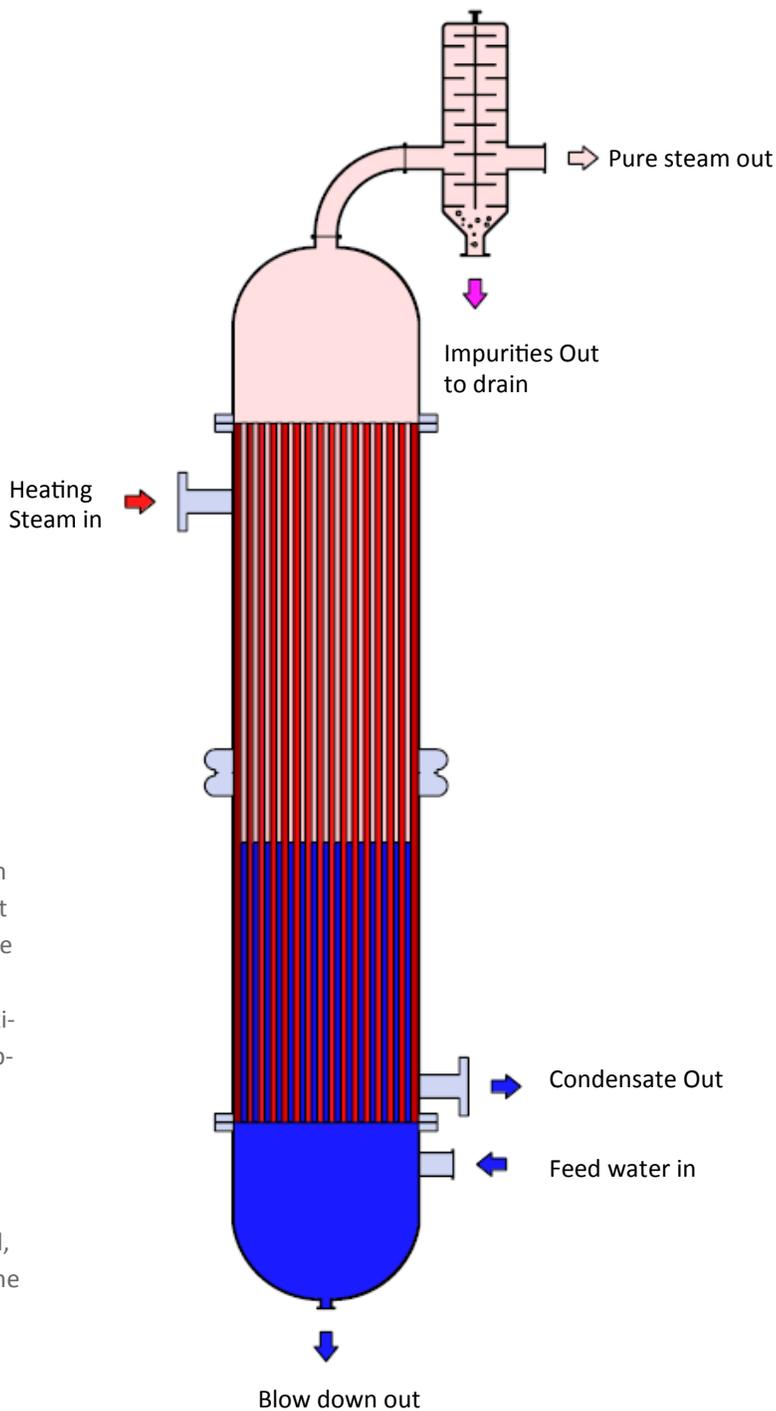
Every BMT steam generator is produced to your exact specifications and needs. Flexible options allow selection of the right equipment for each requirement. Control systems are designed to be user friendly, and are easily configured to obtain the exact parameters needed for special processes. Whether you require pure or clean steam, electric heated or heated by plant steam, small or large capacity, BMT has the right steam generator for every requirement.





# BMT Steam Generators

BMT Steam Generators are designed not only to meet the US FDA cGMP guidelines, but to exceed industry standards. Reliability and serviceability are engineered into every unit. Validation is one of the biggest concerns in purchasing a steam generator, so special attention has been given to the documentation and repeatability of each system. Utilizing the latest 3D parametric and MRP software along with BMT's lean manufacturing principles allows for state-of-the-art solutions, which are unsurpassed in quality and reliability yet without sacrificing value.



## STEAM HEATED MODELS

BMT Steam-to-Steam Clean Steam Generators utilize plant steam as the heating source to produce clean steam. The tube and shell heat exchanger is made from 316L stainless steel and can be built in single-tube sheet or double-tube sheet construction. The shell side of the evaporator is filled with plant steam providing heat to the evaporator tubes. The tubes are filled up to approximately 40% from the bottom. As the feed water is evaporated to steam, the steam travels up the tubes where additional heat removes any moisture. The steam exiting the top of the evaporator is clean dry and saturated. The impurities are lead to drain via an automatic timed blow down valve. If pure steam is required, a steam separation device is attached to the outlet of the evaporator. The steam separator is designed to direct the steam in a rigorous path where any impurities or remaining moisture is stripped off from the steam and lead to drain. When condensed the Pure Steam will meet Water-for-Injection standards.

## ELECTRIC HEATED MODELS

BMT Electric Clean Steam Generators are equipped with an ASME pressure vessel constructed from 316L stainless steel. All connections on the vessel including the heating elements are sanitary and sloped to drain. Piping in contact with the clean steam is 316L stainless steel with sanitary components and connections. The heating elements are made from 316L stainless steel for long service life. Three phase voltage assures fast heat up times and fast recovery. Voltages can be specified at time of order. The units are equipped with an automatic timed blow-down system that carries any impurities to drain. If pure steam is required, a steam separator will be added to the outlet of the evaporator. The steam separator is designed to direct the steam in a rigorous path where any impurities or remaining moisture is stripped off from the steam and lead to drain. When condensed the Pure Steam will meet Water-for-Injection standards.



Double -Tube -Sheet Construction



Feed Water Booster Pump Systems

## AVAILABLE OPITONS FOR STEAM OR ELECTRIC HEATED MODELS

- Double-tube-sheet construction
- Sanitary feed water piping with sanitary components and connections
- Automatic Drain Valve for prolong shut down
- Siemens or Allen Bradley PLC's
- Stainless steel feed water booster pump system
- Sanitary feed water booster pump system
- Block and bleed valve arrangement to drain feed line when fed with USP or WFI feed water
- Electropolishing of the vessel and piping
- Steam separator for pure steam demands
- Steam condenser and sample valve
- Steam conductivity monitoring and recording
- Feed water conductivity monitoring and recording
- Pressure vessels available in pressure codes for most regions or countries
- Voltage change for different regions or countries



Steam Sample Systems

# examples of steam generator sizes

BMT steam generators are available in a wide range of capacities. The examples below are only a sample of the models that we offer.

MODELS	Electric Heated Models lbs\hr @ up to 80 psig output pressure	Plant Steam Heated Models @ various plant steam pressures with 45 psig output pressure					
		100 psig lbs\hr	7 bar kg\hr	80 psig lbs\hr	6 bar kg\hr	65 psig lbs\hr	5 bar kg\hr
CSG 50	50	50	23	34	15	18	8
CSG 100	100	100	45	68	31	36	16
CSG 150	150	150	68	102	46	54	24
CSG 200	200	200	90	136	62	72	32
CSG 250	250	250	113	170	77	90	40
CSG 300	300	300	136	204	92	108	49
CSG 350	350	350	158	238	108	126	57
CSG 400	400	400	181	272	123	144	65
CSG 500	500	500	227	340	154	180	81
CSG 800	800	800	363	544	246	288	130
CSG 1000	1000	1000	454	680	308	360	163
CSG 1500	NA	1500	680	1020	462	540	244
CSG 2000		2000	908	1360	616	720	326
CSG 2500		2500	1134	1700	771	900	408
CSG 3000		3000	1360	2040	925	1080	489
CSG 4000		4000	1814	2720	1233	1440	653
CSG 5000		5000	2268	3400	1542	1800	816

# service for our clients

## COMMITMENT TO EXCELLENCE

We recognize the important role our equipment plays in your process. Therefore we are committed to provide the highest quality equipment that is backed up with excellent customer service and support. Our team of highly experienced field-service technicians provide the following expert services:

**Installation Services**—reduces time and effort

**Start-up**—for optimization of equipment on-site

**Training**—for ease in operation

**Calibration**—accurate reliable instrumentation

**Validation**—expert knowledge for ease in validating

**Preventative Maintenance**—reduced downtime

**Emergency Service**—24 hours, 7-days a week



# BMT USA Products

- Pure Steam Generators
- Clean Steam Generators
- cGMP Steam Sterilizers
- Laboratory Sterilizers
- Depyrogenation Ovens
- Dry Heat Sterilizers
- Laboratory Ovens & Incubators
- Stability Chambers



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