

# [CPSG] PURE STEAM GENERATOR

PHARMACEUTICAL TECHNOLOGIES  
**BRAM-COR**



## DESCRIPTION

Bram-cor's Pure Steam Generator is suitable for use with steam sterilizers, steam-in-place systems, humidification and any other applications where clean steam is required. When fed with Water-for-Injection the unit will produce pyrogen-free, pure steam. When fed with RO/ DI feed water the unit will produce clean steam. Each Steam Generator produces dry, saturated steam, suitable for sterilization of pharmaceutical production plants, for direct contact with Active Pharmaceutical Ingredients, for Parenteral and Non-Parenteral dosage form applications. The steam, when condensed, meets USP requirements for Water-for-Injection and is purified using centrifugal and gravity separation methods.

## ADVANCED FEATURES

- *Sanitary feed water systems*
- *US FDA cGMP Design & Construction*
- *Industry standard PLC controls*
- *High grade Non-proprietary Components*
- *All stainless steel skid – no rusting*
- *Custom built to specific needs*

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**AWS BIO-PHARMA TECHNOLOGIES**

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## INDUSTRIAL STEAM, ELECTRIC, OR SUPER HEATED WATER CHOICES

**ELECTRIC HEATED GENERATORS:** are available for facilities that do not have sufficient plant steam to utilize as a heating source. The generators are equipped with a highly corrosion resistant 316L stainless steel pressure vessel for increased reliability and longevity. Heating elements are constructed of 316L stainless steel to withstand aggressive feed water. Automatic timed blow-down ensures that impurities are carried to drain and not carried over in the generated clean steam.

**STEAM HEATED 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 or double-tube construction. The evaporator utilizes a wetted design that minimizes the temperature difference between the feed water and the heating steam which results in less stress on the evaporator tube sheet.

EXAMPLES OF CAPACITIES AT VARIOUS PLANT STEAM PRESSURES [45 PSIG STEAM PRESSURE]

MODELS	100 PSIG LBS/HR	7 BAR KG/HR	80 PSIG LBS/HR	6 BAR KG/HR	65 PSIG LBS/HR	5 BAR KG/HR	ELECTRIC HEATED MODELS LBS/HR
CSG 100	100	45	68	31	36	16	100
CSG 250	250	113	170	77	90	40	250
CSG 500	500	227	340	154	180	81	500
CSG 1000	1000	454	680	308	360	163	1000
CSG 1500	1500	680	1020	462	540	244	1500
CSG 2000	2000	908	1360	616	720	326	2000
CSG 3000	3000	1360	2040	925	1080	489	3000
CSG 4000	4000	1814	2720	1233	1440	653	4000
CSG 5000	5000	2268	3400	1542	1800	816	5000

**CONTROL SYSTEMS:** Each steam generator is equipped with industrial-grade Allen Bradley or Siemens PLC's for repeatability and ease of use. When constant steam quality monitoring is desired, the units can be equipped with conductivity monitoring devices. Recorders and printers are available to document temperature, pressure, and quality of feed water and clean steam for a permanent record.

**CGMP COMPLIANCE:** Each steam generator can be constructed in strict compliance with cGMP requirements. Standard features include 316L stainless steel piping and sanitary components, tri-clamp fittings and orbital welding, extensive instrumentation and documentation.

### FEED WATER SYSTEMS

A stainless steel feed water booster pump system can be equipped when the pressure is less than 10 psi greater than the desired pure steam pressure. Sanitary feed water booster pump systems are available when feeding the unit with either USP Purified Water or Water-For-Injection.

