Cert. No. LRQ 0963008
ISO 9001

SSG (Steam to Steam Generator) Compact Clean Steam Generators

Description

The SSG range of compact clean steam generators has been designed to provide steriliser grade clean steam from suitably treated water using plant steam as the heating medium. The range covers steam outputs from 50 kg/h up to 580 kg/h at 3 bar g. The unit comes complete and ready to produce steam once connected to available services.
The pressure vessel is designed and manufactured to PD5500: 2003 Category III and is supplied with the supporting documentation. The vessel is manufactured from 316L stainless steel as are all secondary side wetted parts.

Available types:
Please note that the figures quoted for the following available types are based on a primary steam supply of 8 bar g.

SSG170/PH	Produces up to 170 kg/h of clean steam at 3 bar g
SSG290/PH	Produces up to 290 kg/h of clean steam at 3 bar g
SSG460/PH	Produces up to 460 kg/h of clean steam at 3 bar g
SSG580/PH	Produces up to 580 kg/h of clean steam at 3 bar g

Note: The flowrates and pressures stated are typical values. The unit can provide clean steam at different pressure and flowrates. Please contact Spirax Sarco for any special requirements.
Generators are also available using electricity as the primary heating medium. Details are available on request from Spirax Sarco.

Applications
Suitable for process applications, laundries, food applications, hospital sterilisers, laboratories, and humidification. The SSG can also be used in a number of electronic production processes, pharmaceutical and general biotechnological applications.
Please refer to our general sales brochure on Clean Steam for information on products that can be used in association with the clean steam generator.

Principal features:
- Produces clean steam for sterilising, humidification, culinary, or clean processes, from standard plant steam.
- Fully assembled skid-mounted system.
- Microprocessor steam and feedwater control.
- Produces steam to HTM2031 standards.
- All clean steam wetted parts in stainless steel
- Manufactured to GAMP4 guidelines.

Limiting conditions

Primary side (plant steam)	Maximum operating pressure	10 bar g
	Maximum operating temperature	184°C
	Test pressure	16 bar g
Secondary side (clean steam)	Maximum operating pressure	5 bar g
	Maximum operating temperature	159°C
	Test pressure	11.2 bar g

Clean steam flowrates in kg/h at 3 bar g at different plant steam inlet pressures	**Model**	**5 bar g**	**6 bar g**	**7 bar g**	**8 bar g**
	SSG170/PH	50	90	130	170
	SSG290/PH	80	150	220	290
	SSG460/PH	130	240	350	460
	SSG580/PH	160	300	440	580

Sizes and pipe connections

Connection	**Connection type**	**Connection size**	
		SSG170/PH SSG290/PH	**SSG460/PH SSG580/PH**
Plant steam	Flanged PN16	DN40	DN50
Clean steam	Flanged PN16	DN40	DN50
Condensate	Sanitary clamp	DN25 (BS 4825)	DN40 (BS 4825)
Cold feed	Sanitary clamp	DN20* (ISO 2852)	DN20* (ISO 2852)
Safety valve(s)	Tube end copper pipe	35 mm OD	2 x 35 mm OD
Boiler drain (manual)	Screwed BSP	½"	½"
Boiler blowdown	Screwed BSP	½"	½"
Air supply	Push fit for nylon pipe	8 mm ØD	8 mm ØD

* The **sanitary clamp** connection has a ½" BSP male adaptor fitted.

Materials

Part	**Material**
Pre-heat tank	Stainless steel 316L
Boiler shell	Stainless steel 316L
Heating coils	Stainless steel 316L
Plant steam manifold	Stainless steel 316L
Clean steam manifold	Stainless steel 316L
Frame	Mild steel, powder coated
Pre-heat tank pipework	Stainless steel 316L
Side panel covers	Zinc plated steel, powder coated
Front door	Stainless steel 316L
Insulation covers	Zinc plated steel, powder coated
Insulation	Rocksil
Safety valve discharge pipework	Copper
Feedtank overflow pipework	Copper

Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification without notice.

Technical data

Pneumatics	**Compressed air:** A 6 bar g compressed air supply is required; where this is unavailable an optional compressor can be fitted on the unit (at extra cost).
Electrical	**Electrical requirements:** 400 V 3-phase 50 Hz (10 A per phase). A fused isolator must be incorporated in the supply line as near as possible to the unit. Installed load of the unit - 1.5 kW (intermittent).
Feedwater quality	To produce the highest purity of clean steam we would recommend the use of de-mineralised or reverse osmosis feedwater. It is advised that analysis of the feedwater is undertaken prior to installation and commissioning. Whilst not mandatory the table below gives a guide to recommended typical values.

Property	Maximum value
Ammonium	0.2 mg/l
Heavy metals substitute	0.1 mg/l
Chloride	0.5 mg/l
Nitrate	0.2 mg/l
Residue on evaporation	30.0 mg/l
Phosphate	0.1 mg/l
Silicate	0.1 mg/l
Electrical conductivity at 25°C	35.0 µS/cm

Control	The unit is microprocessor controlled and each shell has pressure monitoring and level control. The unit provides visual display of clean steam pressure and feedtank temperature. The following volt free inputs are available: - Remote start/stop. - Time clock start. - Water pump disable. - Clean steam required.
Outputs	Common fault alarm - volt free. RO feedwater plant on/off - volt free *. or RO feedwater valve open/close - pneumatic.

* **Note:** Where a common Reverse Osmosis (RO) system or ring main is used a separate feedvalve fitted locally to the RO distribution system is required. Please contact Spirax Sarco for further details.

Safety information, installation and maintenance
For full details see the Installation and Maintenance Instructions supplied with the unit.
For spares information refer to the manual supplied with the generator.

Typical specification
The clean steam provider shall be a Spirax Sarco compact clean steam generator SSG460/PH designed and built to produce steam to the HTM2031 standard.
To raise 460 kg/h of clean steam at 3 bar g when supplied with plant steam at 8 bar g.
All items are pre-assembled and mounted on to a compact frame.

How to order
Example: 1 off Spirax Sarco SSG460/PH compact clean steam generator.
Please provide details of primary steam pressure, clean steam pressure, clean steam flowrate and feedwater system.

Ancillary items to be used depending on installation
- Blowdown vessel and system.
- Clean steam check valves.
- Clean steam isolation valves.
- Piston actuated feedvalve with flow restrictor *.
- Primary steam isolation valves.
- Clean steam and primary steam trapsets.

Other items may be required, please contact Spirax Sarco to discuss the full installation.

Dimensions / weights (approximate) in mm and kg

Model reference	A	B	C	D** Access	Weight kg Dry	Wet
SSG170/PH	1 802	600	1 225	600	400	600
SSG290/PH	1 802	600	1 225	600	420	620
SSG460/PH	1 948	700	1 625	600	640	920
SSG580/PH	1 948	700	1 625	600	660	940

** **Note:** To allow safe and comfortable working access we would recommend that at least 1 000 mm is provided at the front and the back of the unit.