



Cert. No. LRQ 0963008

ISO 9001

spirax sarco

TI-P486-08
CH Issue 1

CSM-K High Capacity Clean Steam Generator

The typical package shown below is for illustration purposes only



Description

The CSM-K range of high capacity clean steam generators has been designed to provide sterilizer grade clean steam from suitably treated feedwater using plant steam as the heating medium. Units using other fluids on the heating media can be provided to special order.

The range covers outputs up to 3800 kg/h.

The pressure vessel is manufactured in accordance with PED 97/23/EC and is supplied with a standard package of documentation. The primary medium passes through a tube bundle which can be extracted for cleaning and maintenance. All secondary wetted parts are manufactured from 316 stainless steel.

Applications

Suitable for process applications, laundries, food and beverage applications, hospital sterilizers, laboratories and humidification. The CSM-K 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 other products that can be used in association with the clean steam generator.

Principle features:

- Produces clean steam for sterilization, humidification, and culinary or clean processes, from standard plant steam.
- Fully assembled skid-mounted with all essential safety systems.
- PLC for accurate steam and feedwater pressure control.
- All clean steam wetted parts in 316 stainless steel to avoid contamination.
- Produces steam to HTM 2031 standards.
- Automatic blowdown controls - TDS and bottom blowdown.

Materials

Primary steam header	Carbon steel
Primary side pipework and fittings	SG iron and carbon steel
Tube sheet	Stainless steel AISI 316L
Gaskets	Reinforced graphite
Tube bundle	Stainless steel AISI 316L
Shell	Stainless steel AISI 316L
Shell side flanges	Stainless steel AISI 316L
Support frame	Carbon steel
Insulation (optional extra)	Rock wool + Cover in Aluminium (standard) or stainless steel 304

Maximum steam pressures

Maximum primary steam pressure	12 bar g
Maximum clean steam pressure	7 bar g

Technical data

Pneumatics	Compressed air: A 6 bar g compressed air supply is required; where this is unavailable an optional compressor can be supplied with the unit (at extra cost).	
Electrical	Electrical requirements: 400 V 3-phase 50Hz. A fused isolator of the correct rating must be incorporated in the supply line as near as possible to the unit. Information on the installed load for each individual unit will be supplied by Spirax Sarco.	
Feedwater quality	To meet the requirements of HTM 2031 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 opposite 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
Control	The unit is PLC controlled with the generator having pressure and level control.	
	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

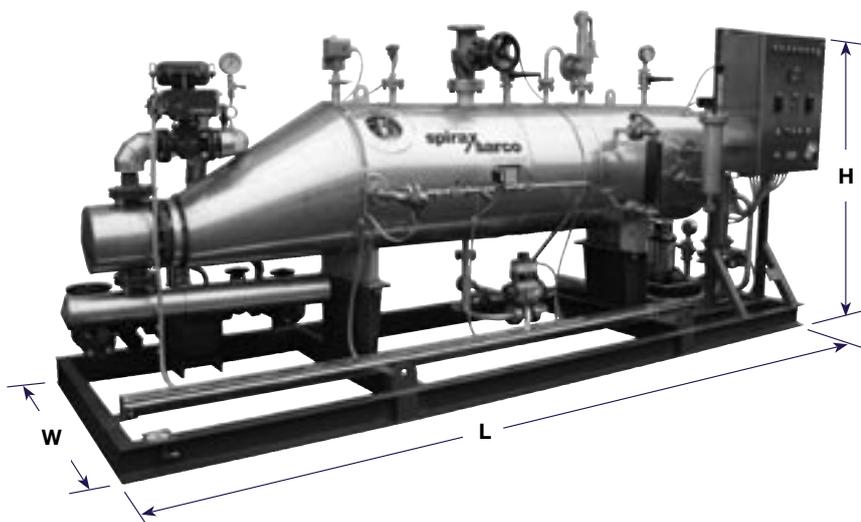
Dimensions (approximate in mm) and standard output production (approximate in kg/h)

Standard output production is based on the following conditions:

- Primary steam pressure 10 bar g;
- Clean steam pressure 3.5 bar g;
- Feedwater inlet temperature 20°C

Engineering drawings, including holding down details, will be provided after ordering 'for approval' and as 'final certified' (as built).

Model CSM-K		401	402	403	501	502	503	601	602	603	604	702	703	704	802	803	804
Maximum dimensions (guidance) in mm	Length L	2900	3400	3700	3000	3500	3800	3300	3800	4000	4750	3900	4150	4900	4000	4000	5000
	Width W	1400	1400	1400	1500	1500	1500	1700	1700	1700	1700	1800	1800	1800	1900	1900	1900
	Height H	1600	1600	1600	1700	1700	1700	1900	1900	1900	1900	2050	2050	2050	2250	2250	2250
Clean steam output (kg/h)		260	320	370	500	620	700	930	1150	1300	1700	1730	2000	2630	2600	2900	3800



Sizing and selection For further information, please refer to TI-P486-13.

Typical specification

The clean steam provider shall be a Spirax Sarco clean steam generator CSM-K704 designed and built to produce steam to the HTM 2031 standard, dependant upon feedwater.

To raise 2000 kg/h of clean steam at 3 bar g when supplied with plant steam at 8 bar g.

All items are to be pre-assembled and mounted on to a compact frame.

How to order

Example: 1 off Spirax Sarco CSM-K704 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.
- Primary steam isolation valves.
- Clean steam and primary steam trapsets.
- CSM-PD preheater and degasser unit.

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