



Cert. No. LRQ 0963008

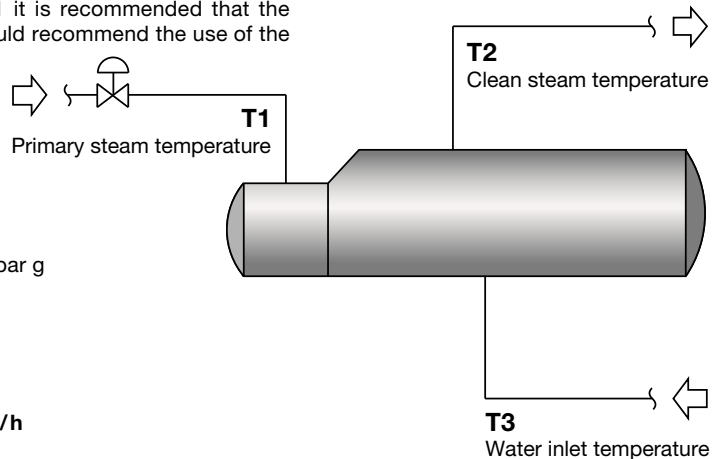
ISO 9001

# spirax sarco CSM-K

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CH Issue 1

## Sizing and Selection of a High Capacity Clean Steam Generator

**Note:** To meet the requirements of HTM 2010 and HTM 2031 it is recommended that the feedwater entering the generator is a minimum of 85°C. We would recommend the use of the CSM-PD preheat and degasser system.



### Sizing and selection example

A CSM-K is required to generate 1000 kg/h clean steam @ 4.5 bar g (T2) with steam @ 9 bar g after the control valve (T1). The water inlet temperature (T3) is 30°C

#### From Table 1:

The water corrective factor @ 30°C = 1.1  
Consequently, the steam load = 1000 kg/h (T2) x 1.1 = 1100 kg/h

**Table 1 Corrective factor for water inlet temperatures**

10°C	20°C	30°C	40°C	50°C	60°C	70°C	80°C	90°C	100°C	110°C	120°C
1.12	1.11	1.10	1.08	1.065	1.05	1.035	1.02	1.00	0.96	0.94	0.93

#### From Steam Tables:

T1 (primary steam pressure) at 9 bar g = 180°C  
T2 (clean steam pressure) at 4.5 bar g = 156°C  
T1 - T2 = 24°C

#### From Table 2 select the unit:

- Follow the T1 - T2 heading to 24°C
- Follow the column downwards from 24°C until you reach a figure either the same as the required steam load or larger. For this example it is 1198 kg/h.
- Follow the line to the left hand side of the Table to select the correct unit for your application.
- Model selected = **CSM-K604**

**Table 2 CSM-K sizing and selection in kg/h @ 20°C water inlet temperature and 10 bar g primary steam pressure**

T1-T2	52°C	37°C	28°C	26°C	24°C	20°C	16°C	12°C	11°C
CSM-K401	403	278	219	202	184	149	110	75	63
CSM-K402	500	350	273	250	230	185	137	93	78
CSM-K403	571	397	308	285	262	211	156	105	88
CSM-K501	752	522	409	377	346	279	207	140	118
CSM-K502	936	652	509	469	431	347	256	173	146
CSM-K503	1 058	738	573	530	487	393	291	196	165
CSM-K601	1 400	974	760	701	645	519	385	259	219
CSM-K602	1 737	1 210	945	871	803	645	479	322	271
CSM-K603	1 976	1 372	1 069	985	907	730	540	364	307
CSM-K604		1 810	1 413	1 300	1 198	962	720	476	404
CSM-K702	2 512	1 887	1 470	1 355	1 246	1 003	743	501	422
CSM-K703		2 120	1 651	1 531	1 408	1 129	840	564	476
CSM-K704		2 700	2 178	2 017	1 844	1 489	1 109	743	625
CSM-K802	3 354	2 727							
CSM-K803		3 063	2 390	2 206	2 030	1 628	1 212	813	687
CSM-K804		3 604	3 145	2 885	2 632	2 139	1 592	1 062	901