CHALLENGE! IT'S

KYUNGHAN CO., LTD.

HIGH TEMP. & HIGH PRESS. STERILIZER BY AIR-STEAM

ISO 9001:2000

STERI-ACE

AIR-STEAM SYSTEM PRODUCES THE DELICIOUS!!

EFFECTIVE DESIGHN NEEDS LESS SPACE & SAVES ENERGY!!

EXAMPLE

KYUNGHAN Co., Ltd.

STERI-ACE REQURED UTILITIES

	PRS-10-I	**PRS-20-I**	**PRS-30-I**	**PRS-40-I**
COMPRESSOR	3.7KW(5HP)	5.5KW(7.5HP)	7.5KW(10HP)	11KW(15HP)
AIR RESERVOIR TANK	TANK LEVEL UP	1000 ℓ	1300 ℓ	1500 ℓ
AIR INLET	10A	10A	10A	10A
COOLING WATER SUPPLY PUMP	1HP 1PHASE	2HP 1PHASE	3HP 3PHASE	3HP 3PHASE
COOLING WATER INLET	20A	40A	50A	50A
COOLING WATER TANK	1 TON	2 TON	3 TON	4 TON
BOILER	300kg/hr	500kg/hr	800kg/hr	1000kg/hr
STEAM INLET	25A	40A	50A	50A
SIZE OF VESSEL (W*H*L)	750*1030*1260	750*20471260	750*3037*1260	750*4047*1260
CHAMBER SIZE (W*H*L)	620*950*960	620*1900*960	620*2850*960	620*3800*960
DIMENSION (W*H*L)	1700*1400*2150	1700*1400*2150	1850*3400*2200	1850*4400*2400

STERI-ACE SPECIFICATION

	PRS-10-I	PRS-20-I	PRS-30-I	PRS-40-I
MAX. WORKING PRESS·TEMP (kg/㎠G, ℃)	2.0 / 125℃			
CHAMBER VOLUME(ℓ)	1035	1975	2920	3850
WEIGHT OF EQUIPMENT(kg)	1850	2500	3200	4000
STEAM CONSUMPTION(kg/1batch)	65	125	200	300
REQUIRED STEAM (kg/Hr)	200kg/hr MIN.	400kg/hr MIN.	600kg/hr MIN.	800kg/hr MIN.
COOLING WATER (ℓ/1batch.15min.)	300	600	900	1200
REQUIRED COMPRESSOR(kW)	3.7	5.5	7.5	11
NO. OF CART	1	2	3	4
DIMENSION OF CHAMBER W*L*H(mm)	620*950*960	620*1900*960	620*2850*960	620*3800*960
DIMENSION OF MACHINE W*L*H(mm)	1680*1365*2150	1680*2365*2150	1680*3365*2300	1680*4365*2400
Tray (30mm기준)	32TRAYS*1SET	32TRAYS*2SET	32TRAYS*3SET	32TRAYS*4SET
NO.OF POUCH(130*170*20(mm)	768POUCH/1Batch	1536POUCH/1Batch	2304POUCH/1Batch	3072POUCH/1Batch
CAPACITY (200g/pouch)	153kg/1Batch	307kg/1Batch	460kg/1Batch	614kg/1Batch


KYUNGHAN
STERI-ACE
STERI-ACE
KYUNGHAN
STERI-ACE
STERI-ACE
KYUNGHAN Co., Ltd.
www.retort.net

「 STERI-ACE 」 WORKING PRINCIPLE

An air steam type retort sterilizer, STERI-ACE, was developed on the foundation of an autoclave that are used in pharmaceutical industries. The drawback from existing steam type and retort sterilizer which is ununiformity of temperature distribution inside of chamber due to Air Pocket.

「 STERI-ACE 」 WORKING PRINCIPLE

Sterilization process of STERI-ACE is divided into 4 major steps as Exhaustion, Ascension, Sterilization, Cooling and Drain.

Ascension and Sterilization process also be divided into 1st Ascension, 1st Sterilization, 2nd Ascension and 2nd Sterilization since STERI-ACE adopted Two Step Sterilization to maximize its efficiency.

EXHAUSTION PROCESS

Purpose of Exhaustion Process is to eliminate cooled and dry air inside of chamber with saturated steam to make adequate environment for sterilization. During the Exhaustion Process, a cold air or not yet heated air inside of chamber will be exchanged with preheated air and saturated steam continuously until temperature of chamber reaches set temperature.

STERILIZATION PROCESS

After Exhaustion Process is completed, STERI-ACE will proceed with Ascension Process. For STERI-ACE, it is very short since medium for heating is steam instead of heated water.

When the temperature of chamber reaches target temperature, timer will automatically start. During the Sterilization process, steam will be supplied continuously in the manner of forced circulation by suction.

COOLING PROCESS

For the Cooling Process, a primary purpose of this cooling process is to prevent pouch from rupturing. During the Sterilization process, the contents inside of pouch has been already boiled and the air has been expended due temperature. If the chamber door is opened without cooling down the products, the pouch will rupture due to differences between pressure inside of pouch and outside.

However, the temperature of product cool down before they are out of chamber, pressure balance will prevent from the rupture. Moreover, cooling process also can be used in actual cooling of product.


KHS
K202
i.mEx Enterprise Co., Ltd.
KYUNGHAN

CYLNDRICAL VS. RECTANGULAR

Most of Retort Sterilizers have Circular shape Chamber. However, STERI-ACE of Kyunghan Co., Ltd. has Rectangular shape of Chamber which is space and energy efficient.

For Circular shape chamber, chamber itself does not require reinforcement as much as rectangular shape chamber since circular shape itself is structurally pressure resistant. For the manufacturer, it is cost saving since it requires less reinforcement as mentioned above. However, it has more dead space than a rectangular structure.

CYLINDRICAL STRUCTURE

Dimension of Cylindrical Chamber (mm): Ø1370 x 4000

Tray Loading Dimension (mm): (900 x 980 x 900) x 4 sets

Volume of Cylindrical Chamber: **Vol C**(㎥) $= \pi/4 * D^2 * L$

$= \pi/4 * 2.15 * 3.10$

= **5.90**

Volume of Trays: **Vol T** (㎥) = (0.90 * 0.98 * 0.90) * 4

= **3.18**

Dead Space cylindrical (㎥) = Chamber Volume(㎥) – Tray Loading Volume(㎥)

= **Vol C – Vol T**

= 5.90 – 3.18

= **2.72**

RECTANGULAR STRUCTURE

Chamber Dimension (mm): 750 x 1260 x 4100

Tray Loading Dimension (mm): (640 x 960 x 960) x 4 sets

Volume of Rectangular Chamber: **Vol R** (m^3) = 0.75 * 1.26 * 4.10
= **3.87**

Volume of Trays: **Vol T** (m^3) = (0.64 * 0.96 * 0.96) * 4
= **2.36**

Dead space rectangular (m^3) = Chamber Volume(m^3) – Tray Volume(m^3)
= **Vol R** – **Vol T**
= 3.87 – 2.36
= **1.51**

RECTANGULAR STRUCTURE

Dead Space cylindrical (㎥) = Chamber Volume(㎥) – Tray Loading Volume(㎥)
= **Vol C** – **Vol T**
= 5.90 – 3.18
= **2.72**

Dead space rectangular (㎥) = Chamber Volume(㎥) – Tray Volume(㎥)
= **Vol R** – **Vol T**
= 3.87 – 2.36
= **1.51**

Dead Space **rectangular 1.15** (㎥) < Dead Space **cylindrical 2.72** (㎥)

Therefore, Rectangular structure is more efficient than cylindrical structure.

RI-ACE
STERI-ACE
KYUNGHAN


KYUNGHAN
STERI-ACE
KYUNGHAN Co., Ltd.
www.retort.net


KYUNGHAN
STERI-ACE
STERI-ACE
KYUNGHAN Co., Ltd.

KYUNGHAN Co., Ltd.

곰탕
꼬리곰탕
키위
유자
매실
재첩국
육계장
장조림
海神 전복죽
東和
마시는 두부
스파게티
크림소스
미트소스
Bolognese
오가피
가시오가피
콩사랑
샌드위치 샐러드
오징어
HemoHIM
KYUNGHAN Co., Ltd.
www.retort.net