

## Horizontal Steam Sterilizer

" Steam Sterilizers " commonly known as " Autoclaves ", are designed to sterilize using saturated steam at minimum 1 bar steam pressure with a holding time of at least 15 minutes at 121 °C or 3 minutes at 134 °C.

Tek-bal Horizontal Steam Sterilizers are designed to sterilize autoclavable materials like metal instruments, textiles, plastics, liquids, glassware, media preparation and medical waste used in hospitals, healthcare clinics, dental clinics and surgery centers where you need sterilization.

We provide combination of B Class, N Class and S Class " Steam Sterilizers " with AISI 316L stainless steel, passivated and electropolished vessel construction in a range of sizes since 100 liter up to 1200 liter with programmable control choices.

### Why choose a TEK-BAL STR Series Steam Sterilizers ?

- Have been producing only " Steam Sterilizers " for more than 40 years, provide a minimum 10-year parts and service guarantee.
- Proven performance guarantee with " inspection " by accredited laboratory " Hyggen " and " LVT " according to EN 285 : 2016, Steam Quality Standard , Low Voltage Directive and Electromagnetic Compability tests.
- Using A+ quality products of world-famous brands, any part used in the device also chassis, outer body, chamber isolation coating, steam generator, steam lines are made of high quality stainless steel.
- User friendly technology with high resolution touch screen and fully automated operation allows medical staff can use our steam sterilizers without needing previous technical qualifications.
- Digital monitoring of all pressures and temperatures, as well as the use of extra electronic and mechanical safety systems. Advanced alarm system for utilities such as electricity, water , compressed air and drain line faults.
- With AISI 316L stainless steel pneumatic valves, much longer service life than solenoid valve, safer sterilization, preventing possible malfunctions and preventing the possibility of unsuccessful sterilization.
- High-efficiency vacuum pump redesigned by TEK-BAL, its reduces water consumption and cycle time, provides a more reliable sterilization and more dried materials at the end of the sterilization cycle.
- Special designed chamber dimensions, low operating cost, maintenance-free door system, fast cycle times provide peak performance, maximizing productivity and efficiency at your sterilization department.
- Maintenance free counterweight system door design no need maintenance during lifetime against the pneumatic door piston system.
- Engineered green technologies provides reduced water and energy consumptions.

**SINCE**  
**1980**



REMOTE CONTROL FEATURE ON PC, TABLET, SMARTPHONE



## Quality, Technology and Safety

### Using an autoclave has never been easier

High resolution touch screen and user-friendly software allows operate the sterilizer easily without needing previous technical qualifications.

### Wide capacity options

Wide chamber capacities from 100 liter up to 1200 liters. We are at your service with a model range that can meet the demands from a small clinic to a large hospital.

### Fast cycle times

Increase your efficiency with fast cycle times. TEK-BAL steam sterilizers promises faster cycle times thanks to its powerful vacuum system, intuitive software, powerful steam generator and robust design.

### Robust design

Chamber, jacket, steam generator are constructed from AISI 316L quality stainless steel. Electropolishing after passivation was preferred instead of mechanical polishing as a polishing method. Although it increased the production cost, achieves maximum material strength.

### Maintenance-free door system

There is no pneumatic piston in the door system. Does not require piston or cylinder gasket replacement. Door system designed with counterweight system. Counterweight carries the door with a chain and gear. Movement is provided with a stepper motor.

### Sterilize reliably in small spaces

Get big efficiency in small space. Our autoclaves designed with engineering are aimed at maximum efficiency in the smallest spaces.

### Advanced Safety

All models are produced in accordance with the pressure vessels standard. It has PED 2014/68/EU certificate by Notify Body. In addition mechanical and electronic security systems were added by calculating all kinds of risks.

### Hygienic Surfaces

The outer surfaces that come into contact with the user and the material are completely made of satin polished stainless steel. Hygiene is provided with a surface roughness of less than 0.5 Ra, including the control panel.

### Validated Sterilization Cycles

Many criteria such as empty chamber heat penetration performance, half and full load sterilization have been validated for the cycles used in the device by "Hyggen Austria" according to EN 285:2016.

### Validated Drying Performance

TEK-BAL sterilizers have an excellent drying feature thanks to its advanced design with 40 years of experience, steam heating jacket system and high vacuum power. Drying performances have been validated by "Hyggen Austria", materials measured 2% lighter than before sterilization at end of the sterilization cycle.

### Validated Steam Quality

The quality of the steam produced in built-in steam generators has been validated by "Hyggen Austria" according to EN 285:2016 standard. In this way, the quality of the steam used in sterilization is assured.

### Discover Green Cycles

Minimize climate impact thanks to optimized energy consumption. Optimize water consumption with the optional water saving system, help for a more reliable future while saving.

### Test Cycles

Vacuum Leak Test Cycle  
Bowie-Dick Test Cycle ( 134 °C )

### Sterilization Cycles

Instrument Cycle ( 134 °C )  
Textile Cycle ( 134 °C )  
Plastic Cycle ( 121 °C )  
Liquid Cycle ( 121 °C )  
Flash Cycle ( 134 °C )  
Flash 2 Cycle ( 134 °C )  
20 User Defined Sterilization Cycle





## Advanced Control System

- User-friendly control system, if the indicators are green, you are ready for sterilization
- Ability to display the whole system on the screen
- Digital monitoring of all pressures
- Movement and position monitoring of doors
- 7" high resolution touch screen as 10" optionally



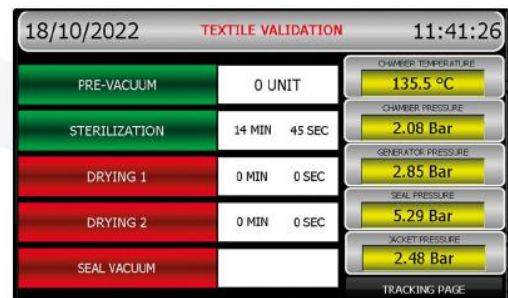
- Sterilization temperatures at 121°C and 134°C
- Validated sterilization cycles
- 2 Test Cycles, 6 Sterilization Cycles
- One-touch cycle start and fully automated process
- Parameters adjustment for each program with password
- Ability to save the user name and print in reports

- Ability to set user-defined sterilization cycle
- Ability to change the name of the defined cycle
- 20 user defined sterilization cycle memory



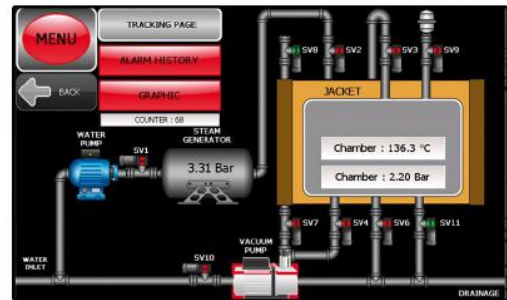
- Ability to change the all parameter of the defined cycle
- Pre-vacuum : 0 - 9 Unit
- Sterilization Time : 3 - 999 Minutes
- Drying Time : 0 - 999 Minutes
- Sterilization temperatures : 121°C and 134°C
- Ability to cancel the pre-vacuum and drying process

- Track each process easily, completed processes turn green respectively. See the next step that needs to happen, no surprises.
- Independent recording for cross-checking temperature and pressure measurement.
- Cycle report as digital with graphic on USB Memory
- Cycle report as printout on the built-in printer



- Active alarm system keeps the steps during the process under constant control.
- Checks all parameters such as sterilization temperature, sterilization pressure, vacuum rate, pressures and etc. in case of an error gives audible and visual warning.
- Alarm system that informs the user in case of an error thanks to the sensors in the utilities such as mains electricity, water supply and compressed air supply in the device.

- Tracking page function allows to monitor the all system for easy diagnose.
- Active components are symbolized in green and inactive ones in red to see the working components in the device. temperature and pressure values are displayed on a single screen.
- Off-site remote service access (only with network access or VPN Module)
- Remote parameters adjustment for each program (only with network access)



MENU		
ALARM HISTORY		
Ack Selected	Active Time	Text
<input type="checkbox"/>	14/04/2012 20:53:21	NO COMPRESSED AIR .... CHECK YOUR COI
<input type="checkbox"/>	14/04/2012 20:51:45	EMERGENCY BUTTON PRESSED .....
<input type="checkbox"/>	14/04/2012 20:49:39	EMERGENCY BUTTON PRESSED .....
<input type="checkbox"/>	14/04/2012 20:47:56	EMERGENCY BUTTON PRESSED .....
<input type="checkbox"/>	14/04/2012 19:39:07	NO COMPRESSED AIR .... CHECK YOUR COI
<input type="checkbox"/>	14/04/2012 18:40:43	INCORRECT PHASE SEQUENCE OR PHASE N
<input type="checkbox"/>	14/04/2012 17:45:36	TRANSMITTER 1 FAULTY .... CHECK CONNE
<input type="checkbox"/>	14/04/2012 17:45:36	TRANSMITTER 2 FAULTY .... CHECK CONNE
<input type="checkbox"/>	14/04/2012 17:45:36	TRANSMITTER 3 FAULTY .... CHECK CONNE
<input type="checkbox"/>	14/04/2012 17:45:36	TRANSMITTER 4 FAULTY .... CHECK CONNE
<input type="checkbox"/>	14/04/2012 17:45:36	VACUUM PUMP THERMIC OVERLOAD .... CI

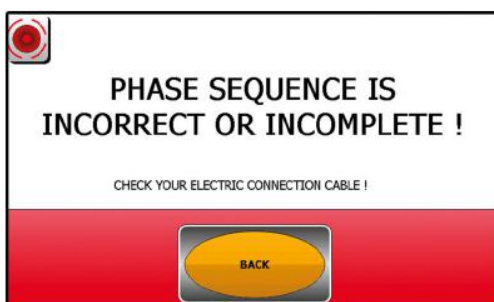
- Advanced alarm history function.
- Device records all alarms with time and date.
- Can disable or enable alarms.
- You can keep track of the last 500 alarm records.

- Inputs page which enables the technician to check each system component separately for easy diagnose possible faults on sensors (Input means signal from the sensors like door sensor, water level sensor, pressure switches, emergency button etc.)



- Output page which enables the technician to check each system component separately for easy diagnose possible faults on components. (Output means operated by the PLC like pneumatic valves, vacuum pump, water pump, heater contactor etc.)

- Multiple security levels to access ( User, Service, Administrator)
- Parametes settings for each cycle
- Working and safety Pressure settings
- Temperature calibration settings
- Pressure calibration settings
- System settings
- Safety settings
- Time,date and language settings

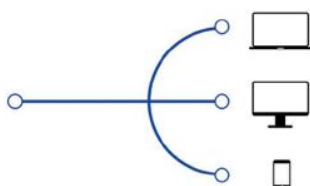
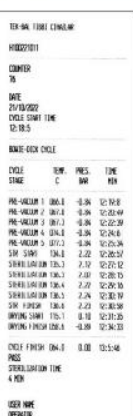


- Every triggered alarm comes with clear on-screen directions for what action to take. Thus, pauses in work are prevented for simple utility problems.



Documentation has never been easier.  
Can collect the printout or keep digital files on USB ,  
it's your choice.

- Cycle report as digital with graphic on USB Memory
- Cycle report as printout on the built-in printer
- Automatic recording and printout of cycle
- Convenient access to graphs and tables that are easy to understand
- No need extra software for digital reports, you can view the files as excel or pdf



REMOTE CONTROL FEATURE ON PC, TABLET, SMARTPHONE



### Remote Control on Ethernet port

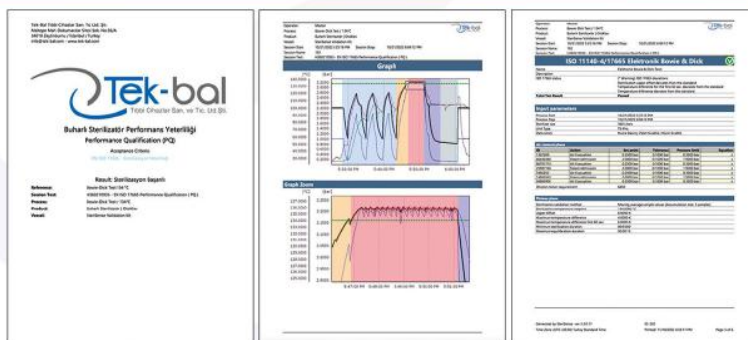
Tek-bal sterilizers equipped with remote access and monitoring features on network access is installed. This enables the user to access the sterilizer's control panel over a local network or from any place using an internet connection. Depending on the type of network the sterilizer can be equipped with a router for a wireless connection or a switch if the sterilizer is supposed to use a wired network. Additionally, sterilizers with a router can be used to create a local Wi-Fi network, allowing direct access from a PC, smartphone or tablet with two different mode.

### Mode 1- Only Monitor

### Mode 2 - Monitor and Operate

## Advanced Quality Control Process

All controls of the device are precisely controlled by the quality control department. Grounding, insulation and many parameter tests are performed with calibrated precision measuring equipment. The sterilization performance is done with the electronic validation kit according to ISO 11140-4 and ISO17665 standard and a copy of the validation report is sent to the buyer upon delivery. Thus, the reliability of the device you have purchased is fully proven. For Tek-bal, each sterilizer is very valuable and this is the standard procedure.



**Validated Design and Performance**  
**by "Hygcen Austria"**

All substances required in the EN 285 : 2016 standard were validated by " Hyggen Austria " and a " Type Test Inspection Report " was given as a result. TEK-BAL Sterilizers have an excellent sterilization and drying feature thanks to its advanced design with 40 years of experience. Many criteria such as empty chamber heat penetration performance, half and full load sterilization, have been validated for the cycles used in the sterilizer. Drying performances have been validated. Materials measured 2% lighter than before sterilization at end of the sterilization cycle. The quality of the steam produced in built-in steam generators has been validated. The quality of steam used in sterilization is assured.



### Chamber Volumes

Model	Chamber Volume ( Liter)	Generator Power	Total Power	Overall Weight	External Dimensions (W x H x D)
STR - 100	101 L	15 kVA	18 kVA	600 Kg	860 x 880 x 1700 mm
STR - 130	131 L	27 kVA	30 kVA	650 Kg	860 x 950 x 1700 mm
STR - 160	160 L	27 kVA	30 kVA	700 Kg	860 x 1250 x 1700 mm
STR - 250	250 L	31.5 kVA	35 kVA	900 Kg	960 x 1250 x 1900 mm
STR - 360	363 L	42 kVA	45 kVA	1000 Kg	1160 x 1100 x 1900 mm
STR - 450	456 L	42 kVA	45 kVA	1100 Kg	1160 x 1380 x 1900 mm
STR - 600	600 L	42 kVA	45 kVA	1200 Kg	1160 x 1750 x 1900 mm
STR - 800	803 L	63 kVA	66 kVA	1400 Kg	1160 x 2200 x 1900 mm
STR - 1000	1014 L	73.5 kVA	77 kVA	1650 Kg	1160 x 2700 x 1900 mm
STR - 1200	1225 L	73.5 kVA	77 kVA	1950 Kg	1160 x 3200 x 1900 mm

### Chamber Dimensions and Capacities

Model	Chamber Dimensions (W x H x D)	STU <sup>1</sup>	DIN <sup>2</sup>	ISO <sup>3</sup>	SPRI <sup>4</sup>
STR - 100	400 x 400 x 630 mm	1	1	2	2
STR - 130	400 x 400 x 820 mm	1	1	2	2
STR - 160	400 x 400 x 1000 mm	1	1	2	2
STR - 250	500 x 500 x 1000 mm	1.5	1.5	2	2
STR - 360	650 x 650 x 860 mm	4	4	6	6
STR - 450	650 x 650 x 1080 mm	6	6	6	6
STR - 600	650 x 650 x 1420 mm	8	8	9	9
STR - 800	650 x 650 x 1900 mm	12	12	12	12
STR - 1000	650 x 650 x 2400 mm	16	16	18	18
STR - 1200	650 x 650 x 2900 mm	20	20	21	21

<sup>1</sup>STU : Standard Sterilization Unit : 600 x 300 x 300 mm (L x W x H)

<sup>2</sup>DIN : Deutsche Industri Norm : (1/1) 575 x 280 x 265 mm (L x W x H) / (1/2) 75 x 280 x 135 mm (L x W x H)

<sup>3</sup>ISO : International Standardization Organization : 600 x 400 x 200 mm (L x W x H)

<sup>4</sup>SPRI : The Swedish Healthcare Planning and Efficiency Institute : 585 x 395 x 195 mm (L x W x H)

### Door Features

Door Type*	Double Powered Door (Standard) Single Powered Door (Optional)
Door System	Vertically Sliding Door
Movement Type	Stepper Motor Powered
Door Movement Design	Maintenance Free Counterweight System (No need maintenance during lifetime against the Pneumatic Door Piston)

### Operating Features

Sterilization Temperature	121 °C- 134 °C
Sterilization Pressure	1.1 - 2.1 Bar
Chamber Test Pressure	4 Bar
Generator Operating Pres.	4 Bar
Generator Test Pressure	6 Bar

### Steam Source Features

Quality of Steam	%97.2 Saturated Steam ( Validated by Hygcn)
Source	Built in Steam Generator (Standard) House Steam ( Optional)
Material of Generator	AISI 316L Stainless Steel (5 mm) with isolation
Water Feeding System	Fully Automated with Pump and Level Control
Side Of Applied Steam	Lateral

### Electrical Features

Operating Voltage	380-V AC 3-P (Standard) 220 V AC 1-P (Optional) 208 V AC 3-P (Optional)
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Front view



Rear view





## Safety & Measurement Features

Steam Generator	1 x Digital Pressure Transducer
	1 x Analog Pressure Gauges
	1 x Mechanical Pressure Presostat
	2 x Mechanical Safety Valve

Jacket	1 x Digital Pressure Transducer
	1 x Analog Pressure Gauges
	1 x Mechanical Pressure Presostat
	1 x Mechanical Safety Valve

Chamber	1 x Digital Pressure Transducer
	1 x Analog Pressure Gauges
	1 x Mechanical Safety Valve
	1 x A Class Temperature Sensor

Door Seal	1 x Digital Pressure Transducer
	1 x Analog Pressure Gauges

## Valves and Connections

Valve Type	Pneumatic Valves for Steam
Material	AISI 316L Stainless Steel
Connections	PTFE Tube and Stainless Steel Pipe

## Vacuum Features

Pump Type	Liquid Ring
Capacity	- 0.97 Bar
Thermal Protection	Overload Protection
	Water Sensor Protection

## Material Specifications

Polishing Method	Passivation and Electropolish*
Chamber	Aisi 316L Stainless Steel
Jacket	Aisi 316L Stainless Steel
Steam Generator	Aisi 316L Stainless Steel
Chamber Door	Aisi 304L Stainless Steel

\*Electropolishing process provides much longer lifetime than mechanical polishing and sandblasting.

Heat Insulation	Wool of Stone and Stainless Steel
Chassis	Aisi 304L Stainless Steel
Chassis Type	Welded Monoblock Chassis
Side Covers	Aisi 304L Satin Polished Stainless Steel
Outbody Surface	Aisi 304L Satin Polished Stainless Steel

## Technical Features

Operating System	Microprocessor Controlled (PLC)
Water Feeding	Automatic with Water Pump
Steam Generator	Built-in Steam Generator
Generator Level Control	Stainless Steel Buoy ( 3 Level)
Jacket System	Filled with Saturated Steam
Display Type	Color TFT, LCD Touch Screen
Display Size	7" (standart) or 10" (optional)
Printer	42 Character / Line Thermal Printer
Communication	RS 232, RS 485, RS 422, Ethernet and USB
Remote Control	Available on PC, Tablet, SmartPhone
Utility Sensors	Electricity, Compressed Air, Water Sensor
Warning System	Auditory & Visual & Printed
Security	Electronical & Mechanical
Condensed Steam Valve	Thermostatic Steam Trap Valve

## Interface Features

Language Options**	English/French/Spanish/Russian/Turkish**
	**Any desired language can be added to the software as free.



**Standard  
Base Shelf  
Version**



**Optional  
Loading Carts  
Version**



Product images belong to STR-250 model. It may differ from the actual product, depending on the capacity and option.

## Standard Features

- Base Shelf for Load
- 7" Touch Screen on Front and Rear Side
- Remote Control on Smartphone, Tablet or PC
- Graphic Cycle Report with USB Stick Memory
- Cycle Report with Built-in Thermal Printer
- Built-in Stainless Steel Steam Generator
- High Efficiency Liquid Ring Vacuum Pump
- High Pressure Water Feeding Pump
- AISI 316L Stainless Steel Pneumatic Valves
- Stepper Motor Powered Sliding Doors
- Utility - Water Sensor
- Utility - Compressed Air Sensor
- Thermic Overload Protection
- Utility - Electricity Phase Sequence Sensor
- A Class PT100 Temperature Sensor
- Digital Pressure Sensor (Generator, Jacket, Chamber, Door Seal)
- Analog Pressure Gauges (Generator, Jacket, Chamber, Door Seal)
- Steam Trap Valve for Chamber
- Steam Trap Valve for Steam Jacket
- Automatic Short Circuit Protection
- Hepa Filter (EN1822 - H14 Class)
- Password Protection

## Optional Features

- Loading Carts and Platform
- 10" Touch Screen
- Silent Air Compressor
- House Steam Connection
- Double Stage Vacuum Pump
- Steam / Air Mixture Cycle
- A Class PT100 Temperature Sensor for Media
- Fast Cooling for Liquid Media
- Remote Control (VPN) Module
- Bio-Seal Gasket for BSL Laboratories
- Exhaust Line Biological filter

## Utility Requirements

### Water Inlet

Treated Water For Generator	No Pressure Required (1/2" NPT)
Mains Water For Vacuum Pump	At least 3 Bar Pressure (1/2" NPT)

### Compressed Air Inlet

For Valves and Door Seal	At least 5 Bar Pressure (1/2" NPT)
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### Drain Outlet

Hot Water and Steam	Metal Pipe (At least 1" NPT)
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## Compatible Directives And Standards

Medical Devices Directive MDD/93/42/EEC  
 Pressurized Equipment Directive PED 2014/68/EU  
 IEC EN 60601-1:2009+A1:2014+AC:2011+A12:2015+A1/AC:2014  
 EN 285+A2:2016, EN ISO 17665, ISO 9001, ISO 13485  
 TS EN 60601-1-2:2016, TS EN 61000-4-2, TS EN 61000-4-3  
 TS EN 61000-4-4, TS EN 61000-4-6, TS EN 61000-4-8  
 TS EN 61000-4-11, TS EN 61000-3-2, TS EN 61000-3-3  
 TS EN 55011, TS EN 61010-2-040:2016, TS EN 61326-1:2013  
 Steam Quality Standards According To EN 285+A2:2016

