### Types of autoclaves

**SteriDelta A Air-Steam Mixture Autoclaves**

These units are fitted with a venturi system for mixing clean steam with air, which becomes the sterilizing media. The autoclave is fully managed through our SCADA system PharmaSter®. This control system provides better drying finish in the finish product. These autoclaves provide more drying finish thanks to the ventilator system and thus, products are discharged ready for packing and labelling.

**SteriDelta W Superheated Water Rain Autoclaves**

These units are fitted with a high flow recirculation system for a sanitary pump and heat exchanger that allows using (WFI) water as heat transfer media for heating up, sterilizing and cooling down the load. This process method provides an easy of validation.

### Control systems

The autoclave has a central control panel, which houses the PLC, signal conditioning units, safety circuits and a nitary pump and heat exchanger system for mixing clean steam with air, which becomes the sterilizing media. The autoclave is fully managed through our SCADA system PharmaSter®. This control system includes an industrial PC with touch-sensitive colour display. The software allows not only for supervision and controlling of the process, but also compiling, storing and processing the whole information in a batch oriented mode. The control system is fulfilling 21 CFR Part 11 guidelines.

### Technical data

**Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Inner chamber dimensions</th>
<th>Chamber capacity</th>
<th>Total volume</th>
<th>Number of units (rack)</th>
<th>Average load capacity (WFI, 120 sec)</th>
<th>Time cycle timings</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI 101562</td>
<td>1.250 x 1.250 x 2.139</td>
<td>1.783</td>
<td>5.850</td>
<td>1</td>
<td>14.901</td>
<td>2.198</td>
</tr>
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<td>2.198</td>
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</tbody>
</table>

**Options and accessories**

- Customized chambers according to existing loading accessories.
- Automatic loading/unloading system.
- Additional temperature probes.
- Additional channels in standard chart recorder.
- Loading accessories: racks, pallets, trolleys, etc.

### SteriDelta Autoclaves with Cycles in Counterpressure

- Telstar ensures the highest in transparency and specifications changes without notice.
SteriDelta
Telstar represents nowadays one of the most advanced and quality alternatives worldwide in the field of sterilisation equipment under CGMP guidelines. Engineering and manufacturing practices follow ISO 9001 procedures, ASME BPE criteria, GAMP guidelines, etc. Design and construction meets the most stringent Regulations and Codes from Europe, USA and others concerning Safety and Pressure Vessels. To ensure the equipment meets your requirements, we work in partnership with you and a dedicated team follows your order as a unique project. We develop specific Quality Plans (DQ, IQ and OQ) and undertake factory acceptance testing (FAT).

When selecting an autoclave for terminal sterilization of liquids, these two questions have to be taken into account:

1) Selecting the chamber dimensions according to the critical batch quantity. The load has to be placed into the chamber properly so that homogeneous temperature distribution / penetration throughout the whole load has to be attained in a way that it can be reproduced (i.e. the process can be validated).

2) Investigating the process method and cycle recipe so the physical condition of the container at the end of the cycle remains unaffected. The wrong choice may lead to deformation of plastic containers, breaking or cracking of flasks and movement of stoppers in the case of vials and pre-filled syringes.

Our SteriDelta autoclaves are specially designed for terminal sterilization of liquids in closed containers as they are prepared to provide automatic differential pressure compensation based on product probes temperature measurements (ΔT) so deformation and damage of the plastic containers is prevented.

A cylindrical single-wall chamber with rectangular door/s both made entirely from AISI 316 L stainless steel providing highest corrosion resistances.

The doors are automated, typically of horizontal sliding motion, powered by pneumatic cylinders. Chamber is sealed by means of an O-ring silicone gasket, lodged inside a machined groove in the frame, which does not require lubrication.

Chamber and door inner surfaces are mechanically polished to Ra < 0.64 μm giving mirror appearance.

All components and pipe work parts such as valves, heat exchangers, pumps, filters, fittings, gaskets, etc. are supplied with quality certificates, according to current standards in sanitary installations and they are designed and installed for proper maintenance and long life cycles. i.e. pneumatic operated valves, Tri-Clamp type connections and process tubing made of stainless steel AISI 316 L.

The double door chambers incorporate the necessary interlocks and each door has precaution mechanisms to ensure maximum operator safety.

The technical area is designed for ergonomic maintenance, with enough access to components and easy replacement of spares without almost using tools. Potential hot piping is insulated with chloride-free mineral wool within an external stainless steel AISI 304 sheet.

The loading and unloading handling operations can be done either manually or, when large and heavy loads have to be handled, by using automatic mechanisms. The automatic loading/unloading system consists of a bench located in front of the door, where the pallets are placed. The pallets are then introduced by a mechanical system below the bench. Another alternative for big and heavy loads is to install the unit in a pit, thus leading height is at floor level.

Safety and Ergonomic Design for Users

Monitoring and Productivity

Venting is through a high efficiency filter, 0.22 μm prepared for “in-situ” sterilization (SIP) and provided with the necessary connections to carry out the integrity test. This provides rapid startup for productions.

There are multiple temperature probes Pt-100, 1/3 DIN type, which are strategically placed in the chamber, mobiles or fixed.
SteriDelta

Telstar represents nowadays one of the most advanced and quality alternatives worldwide in the field of sterilization equipment under CGMP guidelines. Engineering and manufacturing practices follow ISO 9001 procedures, ASME BPE criteria, GAMP guidelines, etc. Design and construction meets the most stringent Regulations and Codes from Europe, USA and others concerning Safety and Pressure Vessels.

To ensure the equipment meets your requirements, we work in partnership with you and a dedicated team follows your order as a unique project. We develop specific Quality Plans (DQ, IQ and OQ) and undertake factory acceptance testing (FAT).

When selecting an autoclave for terminal sterilization of liquids, these two questions have to be taken into account:

1) Selecting the chamber dimensions according to the critical batch quantity. The load has to be placed into the chamber properly so that homogeneous temperature distribution / penetration throughout the whole load has to be attained in a way that it can be reproduced (i.e. the process can be validated).

2) Investigating the process method and cycle recipe so the physical condition of the container at the end of the cycle remains unaffected. The wrong choice may lead to deformation of plastic containers, breaking or cracking of flasks and movement of stoppers in the case of vials and pre-filled syringes.

Our SteriDelta autoclaves are specially designed for terminal sterilization of liquids in closed containers as they are prepared to provide automatic differential pressure compensation based on product probes temperature measurements (ΔT) so deformation and damage of the plastic containers is prevented.

Durable Construction

A cylindrical single-wall chamber with rectangular door/s both made entirely from AISI 316 L stainless steel providing highest corrosion resistances.

The doors are automated, typically of horizontal sliding motion, powered by pneumatic cylinders. Chamber is sealed by means of an O-ring silicone gasket, lodged inside a machined groove in the frame, which does not require lubrication.

Chamber and door inner surfaces are mechanically polished to Ra ≤ 0.64 μm giving mirror appearance.

All components and pipe work parts such as valves, heat exchangers, pumps, filters, fittings, gaskets, etc. are supplied with quality certificates, according to current standards in sanitary installations and they are designed and installed for proper maintenance and long life cycles, i.e. pneumatic operated valves, Tri-Clamp type connections and process tubing made of stainless steel AISI 316 L.

Hygienic Design

The double door chambers incorporate the necessary interlocks and each door has precaution mechanisms to ensure maximum operator safety.

The technical area is designed for ergonomic maintenance, with enough access to components and easy replacement of spares without almost using tools. Potential hot piping is insulated with chloride free mineral wool within an external stainless steel AISI 304 sheet.

The loading and unloading handling operations can be done either manually or, when large and heavy loads have to be handled, by using automatic mechanisms. The automatic loading/unloading system consists of a lifting platform in front of the door, where the pallets are placed. The pallets are then introduced in a mechanical system below the bench. Another alternative for big and heavy loads is to install the unit in a pit, thus leading height is at floor level.

Monitoring and Productivity

Venting is through a high efficiency filter, 0.22 μm prepared for “in situ” sterilization (SIP) and provided with the necessary connections to carry out the integrity test. This provides rapid startup for production.

There are multiple temperature probes Pt-100, 1/3 DIN type, which are strategically placed in the chamber, mobiles or fixed.
SteriDelta

Telstar represents nowadays one of the most advanced and quality alternatives worldwide in the field of sterilization equipment under CGMP guidelines. Engineering and manufacturing practices follow ISO 9001 procedures, ASME BPE criteria, GAMP guidelines, etc. Design and construction meets the most stringent Regulations and Codes from Europe, USA and others concerning Safety and Pressure Vessels.

To ensure the equipment meets your requirements, we work in partnership with you and a dedicated team follows your order as a unique project. We develop specific Quality Plans (DQ, IQ and OQ) and undertake factory acceptance testing (FAT).

When selecting an autoclave for terminal sterilization of liquids, these two questions have to be taken into account:

1) Selecting the chamber dimensions according to the critical batch quantity. The load has to be placed into the chamber properly so that homogeneous temperature distribution / penetration throughout the whole load has to be attained in a way that it can be reproduced (i.e. the process can be validated).

2) Investigating the process method and cycle recipe so the physical condition of the container at the end of the cycle remains unaffected. The wrong choice may lead to deformation of plastic containers, breaking or cracking of flasks and movement of stoppers in the case of vials and pre-filled syringes.

Our SteriDelta autoclaves are specially designed for terminal sterilization of liquids in closed containers as they are prepared to provide automatic differential pressure compensation based on product probes temperature measurements (ΔT) so deformation and damage of the plastic containers is prevented.

General construction features

Durable Constraction

A cylindrical single-wall chamber with rectangular door/s both made entirely from AISI 316 L stainless steel providing highest corrosion resistances.

The doors are automated, typically of horizontal sliding motion, powered by pneumatics cylinders. Chamber is sealed by means of a O-ring silicone gasket, lodged inside a machined groove in the frame, which does not require lubrication.

Hygienic Design

Chamber and door inner surfaces are mechanically polished to Ra ≤ 0.64 μm giving mirror appearance.

All components and pipe work parts such as valves, heat exchangers, pumps, filters, fittings, gaskets, etc. are supplied with quality certificates, according to current standards in sanitary installations and they are designed and installed for proper maintenance and long life cycles, i.e. pneumatic operated valves, Tri-Clamp type connections and process tubing made of stainless steel AISI 316 L.

The double door chambers incorporate the necessary interlocks and each door has precaution mechanisms to ensure maximum operator safety.

The technical area is designed for ergonomic maintenance, with enough access to components and ease replacement of spares without almost using tools. Potential hot piping is insulated with chloride-free mineral wool within an external stainless steel AISI 304 sheet.

The loading and unloading handling operations can be done either manually or, when large and heavy loads have to be handled, by using automatic mechanisms. The automatic loading/unloading system consists of a lift in front of the door, where the pallets are placed. The pallets are then introduced by a mechanical system below the bench. Another alternative for big and heavy loads is to install the unit in a pit, thus loading height is at floor level.

Monitoring and Productivity

Venting is through a high efficiency filter, 0.22 μm prepared for “in situ” sterilization (SIP) and provided with the necessary connections to carry out the integrity test. This provides rapid start-up for production.

There are multiple temperature probes Pt-100, 1/3 DIN type, which are strategically placed in the chamber, mobiles or fixed.
These units are fitted with a condenser which cools the vapours and condenses them back into water. This water is collected in a separate container and can be discharged or reused. The condenser is equipped with a water level control system which automatically maintains the correct water level in the condenser container. This process method provides better drying finish in the final product. These autoclaves provide better drying finish thanks to the ventilator system and thus, products are ready for packing and labelling.

- Customised chambers according to existing loading accessories.
- Automatic loading/unloading system.
- Additional temperature probes.
- Additional channels in standard chart recorder.
- Loading accessories: racks, pallets, trolleys, etc.

Technical data:

<table>
<thead>
<tr>
<th>Chamber capacity</th>
<th>Approx. load capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Rack units</td>
<td>Total litres</td>
</tr>
<tr>
<td>1.250</td>
<td>1.500</td>
</tr>
<tr>
<td>1.000</td>
<td>1.250</td>
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<tr>
<td>0.800</td>
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<td>0.450</td>
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<tr>
<td>0.250</td>
<td>0.300</td>
</tr>
<tr>
<td>0.100</td>
<td>0.150</td>
</tr>
</tbody>
</table>

Control systems:

The autoclave has a central control panel, which houses the PLC, signal conditioning sections, safety circuits and general switchgear. This control panel is fully managed through our SCADA system PharmaSter®. This control system includes an industrial PC with touch-sensory colour display. The software allows not only for supervision and control of the process, but also compiling, storing and processing the whole information in a batch oriented mode. The system is fulfilling 21 CFR Part 11 guidelines.

Options and accessories:

- Automatic loading/unloading system.
- Additional temperature probes.
- Additional channels in standard chart recorder.
- Loading accessories: racks, pallets, trolleys, etc.

SteriDelta W Superheated Water Rain Autoclaves

These units are fitted with a high flow recirculation system for a sanitary pump and heat exchanger that allows using (WFI) water as heat transfer media for heating up, sterilizing and cooling down the load. This process method provides easier drying finish in most cases due to its simplicity, economy and ease of validation.

Types of autoclaves:

SteriDelta A Air+Steam Mixture Autoclaves

The autoclave is fully managed through our SCADA system PharmaSter®. This control system includes an industrial PC with touch-sensory colour display. The software allows not only for supervision and control of the process, but also compiling, storing and processing the whole information in a batch oriented mode. The system is fulfilling 21 CFR Part 11 guidelines.

- Customised chambers according to existing loading accessories.
- Automatic loading/unloading system.
- Additional temperature probes.
- Additional channels in standard chart recorder.
- Loading accessories: racks, pallets, trolleys, etc.
**Types of autoclaves**

**SteriDelta A Air-Steam Mixture Autoclaves**

These units are fitted with a condenser system for mixing clean steam with air, which becomes the sterilizing and cooling down the load. This process method provides better drying finishes in the finish product. These autoclaves provide faster cycles but containers come out damp. Anyhow, it is the preferred method in most cases in which condensates may stagnant and be source of problems. The autoclave is fully managed through our SCADA system PharmaSter®. This control system includes an industrial PC with touch-sensitive colour display. The software allows not only for supervision and control of the process, but also compiling, storing and processing the whole information in a batch oriented mode. The system is fulfilling 21 CFR Part 11 guidelines.

**SteriDelta W Superheated Water Rain Autoclaves**

These units are fitted with a high flow recirculation system for wet steam sterilization media. This process method provides better drying finishes in the finish product. These autoclaves provide faster cycles but containers come out damp. Anyhow, it is the preferred method in most cases due to its simplicity, economy and ease of validation.

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**Control systems**

The autoclave has a central control panel, which houses the PLC, signal conditioning units, safety circuits and an industrial PC with touch-sensitive colour display. The software allows not only for supervision and control of the process, but also compiling, storing and processing the whole information in a batch oriented mode. The system is fulfilling 21 CFR Part 11 guidelines.

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**Technical data**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Inner-chamber dimensions</th>
<th>Chamber capacity</th>
<th>Total load capacity</th>
<th>Height</th>
<th>Universe</th>
<th>door opening</th>
<th>Total chamber volume</th>
<th>Chamber height</th>
<th>Chamber width</th>
<th>Chamber depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR-STERIDELTA-EN-1117</td>
<td>300 x 300 x 300</td>
<td>300 liters</td>
<td>500 liters</td>
<td>1500 mm</td>
<td>1100 mm</td>
<td>1200 mm</td>
<td>350 liters</td>
<td>600 mm</td>
<td>1200 mm</td>
<td>1500 mm</td>
</tr>
</tbody>
</table>

**Options and accessories**

- Customised chambers according to existing loading accessories.
- Automatic loading/unloading system.
- Additional temperature probes.
- Additional channels in standard chart recorder.
- Loading accessories: racks, pallets, trolleys, etc.

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**SteriDelta**

Autoclaves with Cycles in Counterpressure

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**ISO 9001: Certified Company**

**Telstar**

Life Science solutions

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**Steristel**

Telstar reserves the right to improvements and specifications changes without notice.