VERTISA

GLASS LAMINATION AUTOCLAVE SYSTEMS

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ABOUT

VERTISA Autoclaves are a worldwide reference in industries such as Glass Lamination, Automotive, Tire Retreading, Food, Pharmaceutical Textile, Composite, Rubber Curing and construction.

Our autoclaves feature the latest technology that ensures full control of the process which is achieved by the autoclave heating the internal medium via electrical heating elements. Hot air is evenly distributed by means of an electric fan to achieve maximum temperature homogeneity. In a similar way a water cooling unit supplied with the autoclave performs a gradual cool down process at the end of the cycle.

GLASS LAMINATION AUTOCLAVES

VERTISA has devoted a large part of its resources and R&D to research the potential of these new materials and to become a leading company at the national and international level in the research of these materials and their industrial applications.

Where very few dare to perfect precision, VERTISA re-sets the standards

Glass laminating autoclaves produced by VERTISA stand out with their high level of technological development, reliability durability and provide the highest performance and maximum efficiency throughout their entire lifetime. The use of glass in critically manufactured elements has led to an exponential growth in the requirement for control, fatigue, and measurement testing for these units. Only the most advanced autoclaves can provide the uniformity levels and cycles required by the industry, making R&D investment and continuous improvement more important than ever.

LAMINATED GLASSES IN AUTOCLAVE

Laminated glass is essentially safety glass made by joining two or more glass of variable thickness, placing one or more layers of polyvinyl butyral (PVB) among them, and then placing the assembly components in an autoclave.

On a standard cycle, the glass should reach 140ºC (280ºF) and 12.5 bars (180 psi) of pressure after being placed in the autoclave and remain under these conditions for at least 60 minutes. However, these conditions may vary depending on the thickness and number of panels.

To optimize the productivity of the autoclave, it is essential to work with a supplier defining the maximum time to reach these temperature and pressure conditions accurately.

The data provided below is a good tool for comparing and ranking different autoclave offers. Heating ramp rate: As a starting point and standard value in the glass industry, we recommend a heat ramp rate of 2ºC/min, which will allow us to go from 20ºC to 140ºC in 60 minutes.

VERTICAL AIRFLOW AUTOCLAVE

VERTISA offers an innovative design for autoclaves with very long or continuous production lines for the lamination of glass. These include vertical airflow and top-mounted motors to ensure optimum and uniform air distribution within the autoclave.

VERTISA has focused its efforts on creating a "smart" autoclave by focusing on improvements in energy efficiency, availability, predictive control and low maintenance.

VERTISA automation control software includes all these features that reduce the consumption costs of the autoclave, increase its productivity and optimize the periodic maintenance tasks that need to be done.

Our technical service can provide front-end support to every country in the world thanks to its high level of connectivity and incorporation of the most advanced solutions in remote connection.

Standard Features

• Encapsulated blower motor eliminates high maintenance needs for the vessel shaft sealing.
• Proprietary blower motor design allows operation at any combination of pressure and temperature.
• Engineered circulating fan ensures excellent heat transfer to load as well as exceptional temperature uniformity.
• A cooling coil functions as a single-pass heat exchanger for precise temperature control with ample provisions for thermal expansion to minimize thermally induced stresses and failure.
• The loading track and floor are designed to allow for thermal expansion yet provide full structural support.
• Safety relief valves and rupture discs are provided on separate vessel penetrations to assure independent and safe operation. Many other redundant safeties are incorporated to assure operator and equipment protection.
• Most vessel penetrations such as vacuum, thermocouple and cooling are removable. This allows easy modification or repairment without compromising the vessel's structural integrity.

Opening Door Features

• This proprietary breech lock door allows full and easy access to the autoclave interior within one minute after the completion of a curing cycle.
• Safety is inherent in its design, but we also include mechanical, hydraulic, electrical and pneumatic interlocks to prevent door operation while the autoclave is pressurized.

VERTISA GLASS LAMINATION GENERAL SPECIFICATIONS

Equipment Capabilities	Glass Lamination
Materials	Carbon Steel Stainless Steel
Length	10-40 Meter
Operating Pressure	12,5 Bar
Operating Temperature	134-140 °C
Wall Thickness	8-15 mm

Heating Methods	Electric Heat Transfer Fluid
Autoclave Parts	Rupture Disc Safety Relief Valve Shielded Electrical Heating Unit Blower Motor Circulating Fan Cooling Coil Heat Exchanger Quick Opening Door

INSTRUMENTATION OPTIONS

Control System Features

Optimized Cycle Processing for maximum production and highest quality

Guaranteed Soak

Glass Temperature Monitoring

Automated Vacuum Leak Checking

Natural Pressure Decay of Temperatures and Pressure

Interactive Screens

Multilevel Security

Control Unit Capabilities

Multiple Equipment Computer

Control Monitoring Recording with Backup

Control Options

Programmable Microprocessor-Based Controls System

Set Point Controls

Honeywell Computer Controls

Manual Controls

Network Compatible Computer-Based Control Systems

Recording Options

Data Logger Recorder

Strip Chart

Computer

Vacuum System Control Types

Automatic vacuum system consisting of a lubricated rotary vane vacuum pump and a series of inlets selected by the customer based on the number of panels to be laminated.Vacuum Control types: Automatic and/or Manual

Cooling System

With our compact solution that include a cooling tower, air refrigerator, chiller, heat exchanger, or a combination of these state- of-the-art compressors from the best brands we are able to achieve maximal cooling efficiency.

AUXILIARY SYSTEMS

Options Available

External Cooling System
Bridge Mechanism
Oxygen Sensor/Air Purge/Safety Interlocks
Vacuum Pumps
Lift Tables
Bridges
Load Carts

Process Controls

Related Safety Equipment
Valves
Piping
Pumps

Safety Features

Door Safety Interlocks
Over-Pressure and Over-Temperature Protection Options
'Operator-Inside' Alarms
Blower Motor Cooling Alarms

Cooling Systems

Steam Separators
Storage Tanks
Cooling Towers
Pumps

SUPPORT SERVICES

Services

Inspection
Installation
Non-Destructive Field Testing
Training for New Systems
Analysis of Equipment
Design and Engineering
Evaluation
Fabrication

Support Services

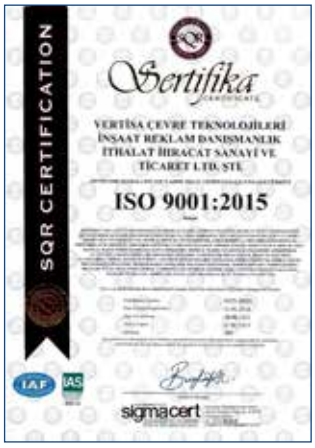
Complete Turnkey Installation
Freight On Board (FOB) Factory Services
On Site Start-Up / Operation / Maintenance Training

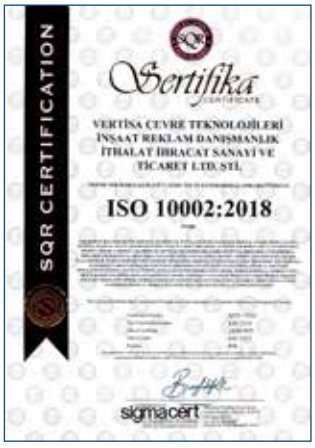
GENERAL FEATURES OF OUR AUTOCLAV

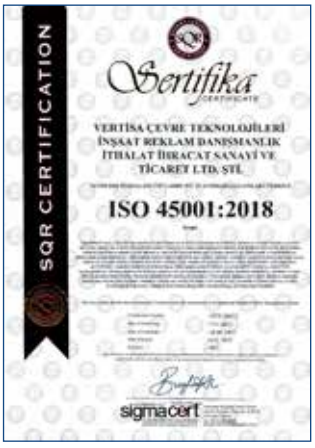
- Working Temperature Up To 140 Degrees C°
- Working Pressure Up To 20 Bar
- 0.5m To 5m Working Diameter
- 1m To 30m Working Length
- Electric Or Gas Powered
- Comply With International Pressure Directives
- Fully CE Marked
- Control Systems
- Duel Loop Profile Controllers
- Heating Medium: Electric Or Gas
- Number Of Vacuum Connections
- Number Of Product Thermocouples
- Manual Or Fully Automatic Door Systems
- Nitrogen Pressurization
- Variable Vacuum
- Fully Integrated Cooling
- Component Loading Systems
- Trolley Loading Systems And Stacking Racks
- Compressor System
- Comprehensive User Manual
- Comprehensive Training Packages
- Full Turn-key Installations

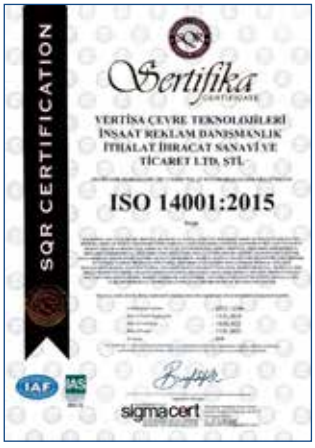
INTERNATIONAL CERTIFICATES

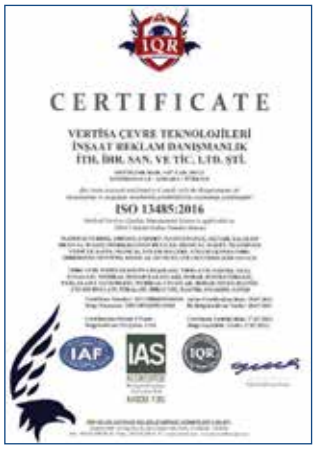
VERTISA has all the necessary certificates for production level and procedures and quality. The company's Quality Department is responsible for ensuring that all processes carried out with manu- factured units comply with each country's regulations and requirements, ensuring maximum quality levels at all times.

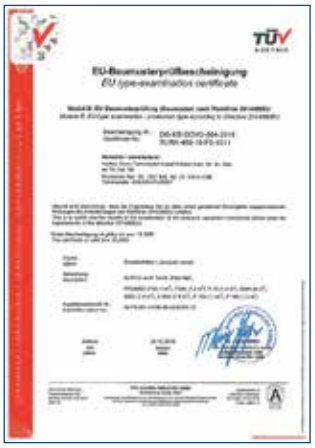


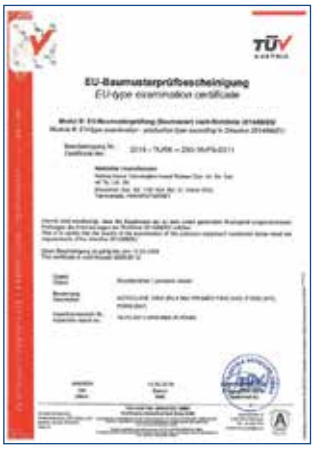


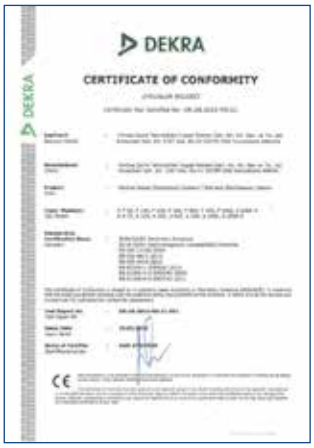












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