LARGE PROJECTS REQUIRE STRONG TEAMS

www.akarmak.com.tr
www.autoclave.com.tr
turnkey autoclave systems with high degree of safety
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LARGE PROJECTS REQUIRE STRONG TEAMS

Our autoclaves are manufactured in our state-of-the-art manufacturing facilities in the city of Eskisehir, with close proximity to major cities and ports. From the customer requirement acquisition stage to design, manufacturing, test, delivery and on-site commissioning, Akarmak is capable of providing turnkey and boutique solutions for every customer need.

The autoclaves are designed using advanced design tools and software meeting the highest safety and quality standards. We approach every project as unique and custom-made, and we can handle customer specific requests. The autoclaves are manufactured with limited reliance on outside suppliers and carried out by an experienced, highly trained and certified work force and technical staff.

Akarmak has the following certifications including those for autoclave and pressure vessel manufacturing:

- Pressured Equipment Directive 97/23/EC (PED)
- Simple Pressure Vessels Directive 2009/105/EC (SPVD)
- ASME SEC VIII Div. 1
- GOST - R
- DIN EN 15085-2 CL 1
- DIN EN ISO 3834-2
- Other certificates that may be required by different countries and jurisdictions.

To certify our autoclaves, we work with internationally well-known certificate agencies such as Bureau Veritas, TUV, Hartford Steam Boilers.

Thank you for your interest in our company and our products. We look forward to realizing successful projects with you and enhancing your value chain with high quality products.

Please do not hesitate to contact us if you have any questions. You can also visit us at www.akarmak.com.tr and www.autoclave.com.tr to get more information about our company and our products.

QUICK FACTS

- State of the art machinery manufacturing facility
- Professional management team with experience and knowledge
- Highly-skilled workforce (incl. certified welders)
- High machining capacity and advanced design capabilities
- Conveniently located in the hub city of Eskisehir (close to ports and major cities)
- ISO 9001 – 2008 certified and providing CE Certification
- Well executed future growth plans
- Export and growth oriented international company
- High degree of flexibility and access to numerous subcontractor companies allow Akarmak to manage high-volume projects
Eskisehir, Turkey Conveniently located close to ports and major cities.

FACTORY
27,000 m² factory space in Eskişehir Industrial Zone

QUALITY
ISO 9001-2008 certified with advanced engineering capabilities
ASME, CE, GOST-R
DIN EN 15085-2 CL 1, DIN EN ISO 3834-2

Professional management with well executed future growth plans
SOFTWARE & HARDWARE CAPABILITIES

- IFS (ERP & MRP) SOFTWARE
- PV ELITE (PRESSURE VESSEL DESIGN & ANALYSIS)
- PROFIRST CAD-CAM
- AUTODESK INVENTOR
- ANSYS CFD Flow w/MRF

WELDING

- SUBMERGED ARC WELDING (Linear and circular parts using column boom and welding stations) (SAW)
- METAL ARC WELDING (MIG & MAG) (GMAW)
- TIG WELDING (Tungsten Inert Gas Welding) (TIG/GTAW)
- ELECTRODE WELDING (MMA / SMAW)

SPECIAL WELDING TESTS

- RADIOGRAPHIC TEST
- ULTRASONIC TEST
- DYE PENETRANT TEST
- MAGNETIC PARTICLE TEST
- VISUAL TEST

MACHINING
STRONG CONNECTION WITH INNOVATION
Safety is critical when it comes to autoclaves, and manufacturing is based on accepted standards.

AKAR'S AUTOCLAVE SYSTEMS SAFETY IS GUARANTEED BY THE FOLLOWING

- Material used is special material used for pressure vessels.
- Safety switches used at the door system showing the door as open/closed and locked
- Advanced PLC control system controlling maximum and minimum pressure values through PLC
- Mechanical over pressure valve system
- Manufacturing based on 97/23/EC Pressure Equipment Directives (PED) or ASME or GOST-R standards
- Manufacturing based on 98/37/AT Machinery Safety Regulation
- Manufacturing based on CE, ASME, GOST-R standards
- Certified autoclaves by world well-known certification agencies such as Bureau Veritas, TUV, Hartford Steam Boilers etc.
- 10 year safety guarantee as part of CE/ASME
COMPOSITE AUTOCLAVES
FOR PRODUCTION & LAB APPLICATIONS

TURNKEY AUTOCLAVES FOR
AEROSPACE
AUTOMOTIVE
MOTO SPORTS
MARINE INDUSTRIES
COMPOSITE
AUTOCLAVES
FOR PRODUCTION

TECHNICAL FEATURES

- Composite autoclaves for various composite material curing applications in production
- Up to Ø 5000 and ability to offer custom-made sizes to respond to customers unique requests
- 260 °C (500 °F) @ 10.5 Bar (150 psi) ; 400 °C (750 °F) @ 14 Bar (200 psi) working conditions
- User friendly and maintenance-free PC based control system offering the best heating, cooling rates and temperature uniformity
- Adaptable to different electrical voltage conditions
- Project specific number of vacuum, thermocouple connections
- Ability to set up turnkey systems including cooling units, autoclave trolleys, compressor sets, nitrogen units
- Authorized onsite commissioning and assembly services around the world and ongoing after-sale support
- Manufactured at state-of-the-art manufacturing facilities
- Advanced safety features with available certification of PED 97/23/EC CE, ASME, GOST-R
- 10 year safety guarantee as part of CE/ASME
COMPOSITE AUTOCLAVES FOR LAB APPLICATION

TECHNICAL FEATURES

Composite autoclaves for various composite material curing applications

- Specifically designed and offered for R&D usage at universities, research centers, laboratories and preproduction tests

- 260 °C (500 °F) @ 10.5 Bar (150 psi) ; 400 °C (750 °F) @ 14 Bar (200 psi) working conditions

- User friendly and maintenance-free PC based control system offering the best heating, cooling rates and temperature uniformity

- Adaptable to different electrical voltage conditions

- Project specific number of vacuum, thermocouple connections

- Ability to set up turnkey systems including cooling units, autoclave trolleys, compressor sets, nitrogen units

- Authorized onsite commissioning and assembly services around the world and ongoing after-sale support

- Manufactured at state-of-the-art manufacturing facilities

- Advanced safety features with available certification of PED 97/23/EC CE, ASME, GOST-R

- 10 year safety guarantee as part of CE/ASME
**TECHNICAL FEATURES**

- Lamination Autoclaves for Flat (Architectural), Auto Glass, and Bullet Resistant laminated glass production
  
- Custom-made solutions with various diameter and length options including jumbo size glass lamination process
  
- Durable bayonet door system and alternative door opening systems depending on customers’ project requirements
  
- Excellent heating, pressurizing, depressurizing and cooling phases guaranteeing perfect end product
  
- Special motor fan system to create optimum temperature and air distribution
  
- Standard heating system: Electrical or thermal
  
- User friendly control system
  
- Energy conservative heating and insulation system
  
- Multiple point safety control devices and built with highest safety standards
  
- Optional features: Vacuum system, autoclave trolleys, cooling units, compressor sets
  
- Manufactured at state-of-the-art manufacturing facilities
  
- Advanced safety features with available certification of PED 97/23/EC, ASME, GOST-R
  
- 10 year safety guarantee as part of CE/ASME
TIRE RETREADING AUToclaves

15” TO 63”
TECHNICAL FEATURES

- Certified P series material suitable for pressure vessels
- Bayonet door closure systems
- Hydraulic door opening and locking mechanism
- Precured or Orbitread system automation control
- Advanced PLC software able to control time, temperature, pressure, DPC functions (precured) automatically
- Manufactured at state-of-the-art manufacturing facilities
- Advanced safety features with available certification of PED 97/23/EC CE, ASME, GOST-R
- 10 year safety guarantee as part of CE/ASME

HIGHEST SAFETY STANDARDS

<table>
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<tr>
<th>Description</th>
<th>Inner Diameter</th>
<th>Length</th>
<th>Capacity</th>
<th>Heating System</th>
<th>Working Pressure</th>
<th>Tire Curing</th>
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<tr>
<td>AKR 881</td>
<td>2300 mm/90”</td>
<td>4900 mm/193”</td>
<td>29.50 R 25 x 4 Tires</td>
<td>Electrical / Indirect Steam</td>
<td>6 Bar/90 psi</td>
<td>J Hook</td>
</tr>
<tr>
<td>AKR 384</td>
<td>3100 mm/122”</td>
<td>4000 mm/158”</td>
<td>27.00 R 49 x 4 Tires</td>
<td>Direct / Indirect Steam</td>
<td>6 Bar/90 psi</td>
<td>J Hook</td>
</tr>
<tr>
<td>AKR 434</td>
<td>3500 mm/138”</td>
<td>5000 mm/197”</td>
<td>36.00 R 51 x 4 Tires</td>
<td>Direct / Indirect Steam</td>
<td>6 Bar/90 psi</td>
<td>Console</td>
</tr>
<tr>
<td>AKR 389</td>
<td>3900 mm/153”</td>
<td>5500 mm/216”</td>
<td>40.00 R 57 x 4 Tires</td>
<td>Direct / Indirect Steam</td>
<td>6 Bar/90 psi</td>
<td>Console</td>
</tr>
<tr>
<td>AKR 337</td>
<td>4600 mm/181”</td>
<td>3500 mm/138”</td>
<td>59/80 R63 x 2 Tires</td>
<td>Direct / Indirect Steam</td>
<td>6 Bar/90 psi</td>
<td>Console</td>
</tr>
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**TRUCK TIRE**

**AUTOCLAVES**

**TECHNICAL FEATURES**

- Fully computerized plc controlled
- Electrical heating system with efficient use
- Preheating feature
- Vacuum test function
- Working pressure: 6 bar (90 psi)
- Advanced safety features with available certification of PED 97/23/EC CE, ASME, GOST-R
- 10 year safety guarantee as part of CE/ASME

**HIGHEST SAFETY STANDARDS**

**TECHNICAL FEATURES**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Inner Diameter (mm)</th>
<th>Length (mm)</th>
<th>Heating System</th>
<th>Working Temperature</th>
</tr>
</thead>
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<tr>
<td>AKR 291</td>
<td>1600 mm / 63&quot;</td>
<td>4500 mm / 177&quot;</td>
<td>Electric</td>
<td>120 °C / 248 °F</td>
</tr>
<tr>
<td>AKR 293</td>
<td>1600 mm / 63&quot;</td>
<td>6000 mm / 236&quot;</td>
<td>Electric</td>
<td>120 °C / 248 °F</td>
</tr>
<tr>
<td>AKR 294</td>
<td>1600 mm / 63&quot;</td>
<td>7500 mm / 295&quot;</td>
<td>Electric</td>
<td>120 °C / 248 °F</td>
</tr>
<tr>
<td>AKR 297</td>
<td>1600 mm / 63&quot;</td>
<td>9000 mm / 354&quot;</td>
<td>Electric</td>
<td>120 °C / 248 °F</td>
</tr>
</tbody>
</table>

**DESCRIPTIONS**
For the production of AAC blocks, Sand Lime Bricks, Fiber Cement HIGHEST SAFETY STANDARDS
200 °C and above service temperatures
15 bar and above operating pressure
Maximum diameter : 5.0 m
Maximum length : 50.0 m
Manual or automatic closure control system

Complete manufacturing of the autoclave bayonet door and shell
Vacuum ring system and steam distribution piping
Direct steam heating
Internal rail system
Multiple point safety control devices and built with highest safety standards

Design and manufacturing based on international standards including CE, ASME, GOST-R
MEDICAL WASTE
STERILIZATION
SYSTEMS
AUTOCLAVES
MEDICAL WASTE STERILIZATION SYSTEM WITH POST & PRE SHREDDED AUTOCLAVE METHODS

High quality materials

Various hourly capacity sterilization systems based on specific customer needs

Full automatic and advanced automation control system with pressured direct steam sterilization in autoclave

Automatic shredding after loading into shredder’s lifter

Advanced reporting and monitoring features

High standard of sterilization meeting requirements by regulations

Turnkey solutions including shredders, autoclave trolleys, steam generators, air compressor systems

Special gasket system for perfect vacuum and pressure conditions

Multiple safety control devices and built with highest safety standards

Design and manufacturing with international standards including CE, ASME, GOST-R
TECHNICAL FEATURES

- Custom made design and manufacturing based on specific customer needs
- Project/application specific working pressure and temperature
- Various heating systems including direct/indirect steam, electrical, gas
- Homogenous heat distribution
- Advanced automation control system and product specific recipes
- Turnkey solutions including autoclave trolleys, steam generators, air compressor systems
- Advanced safety features with available certification of PED 97/23/EC CE, ASME, GOST-R
- 10 year safety guarantee as part of CE/ASME
TECHNICAL FEATURES

- Special vessel manufacturing for project based applications such as filters, vacuum chambers, air receivers, impregnators and many more.
- Custom-made sizes in diameters up to 5000 mm and working pressure up to 80 bars.
- Multiple point safety control devices and built with highest safety standards.
- Design and manufacturing based on international standards including CE, ASME, GOST-R.
Safe turnkey autoclave systems for our customers around the globe
CERTIFICATIONS