

# ALD Vacuum Technologies

High Tech is our Business

## MonoTherm® - Single-Chamber Gas Quench Vacuum Furnace

MT 334 | 446 | 669 | 9912 | Custom-made Size

your preferred choice for a wide range of vacuum heat treatment applications

ALD Vacuum Technologies India Pvt. Ltd. (ALD India) delivers competitive advantages and business values of vacuum heat treatment and metallurgy products for customer-oriented solutions in automotive, aerospace, defence and several other industries.

Our decades of experience in vacuum technology coupled with the state-of-art equipment's ensure that our valued-customers get the quality product that they require. ALD-India-engineered MonoTherm® "single-chamber" vacuum furnaces are 'Made-In-India' with a wide range of standard and tailor-made options to fulfill customers' heat treatment production requirements.

### MonoTherm® Key Features

- Better-engineered Design Solutions
- Customizable Models & Quality Build
- Comply with Natl'/Intl' Build/Test Standards
- Cubical or Cylindrical Hot-zone
- Graphite or All-metal Hot-zone
- Horizontal/Vertical Loading Configuration
- Efficient Heating/Cooling Design
- Excellent Temperature Uniformity
- Enhanced Safety Measures
- Operator-friendly fully-automated PLC-based controls with SCADA

### MonoTherm® Advantages

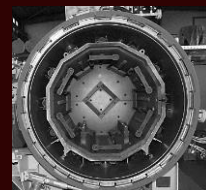
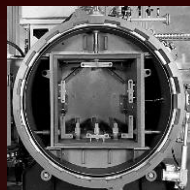
- Advanced and Customizable Process Controls
- Enhanced Product Quality
- High reliability and Productivity
- Long-Term Cost Savings
- Precise Temperature Control
- Multiple Processes in one Equipment
- Optimized Quenching Operation
- Versatility in Applications

### MonoTherm® Processes

- Environmental-friendly processes over the conventional ones
  - Annealing
  - Brazing
  - Hardening
  - Low Pressure Carburizing
  - Stress Relieving
  - Tempering

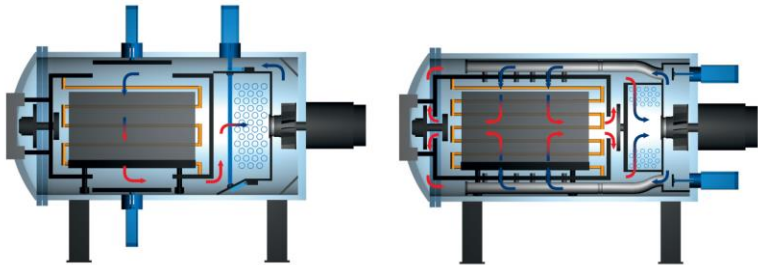
### MonoTherm® Applications

- Aerospace
- Automotive
- Defence
- Energy
- Medical
- Tools & Dies



Sample Images. Actual build shall vary depend on customization meeting customer's requirement.

# Technical Specifications



Schematic view of MonoTherm® with cubical (left) and cylindrical (right) hot zone

MonoTherm® Model	334	446	669	9912	Customized Size on request
Hot Zone Size (L x W x D, in cm)	300/300/400	400/400/600	600/600/600	900/900/1200	Tailor-made
Gross Weight (max.Kg)	250	400	600   800	1000   1200	
Vessel Design	Jacketed (CS/ SS) Cylindrical Vessel Configuration				
Furnace Type	Single-Chamber Construction   Horizontal or Vertical   Top or Bottom Load				
Hot Zone	Cubical or Cylindrical   Graphite   All-metal				
Design Temperature	up to 2400 °C				
Ultimate Vacuum <sup>1</sup>	up to $\sim 5 \times 10^{-8}$ mbar				
Quench Pressure	up to 25 bar				
Quench Gas	Nitrogen   Argon   Helium				
TUS	As per applicable standard				
Automation	PLC, SCADA, HMI				
Optional Features (or) Add-ons (upon Customer's requirement)	Convective Heating				
	Partial Pressure				
	Additional/Enhanced Safety Features				
	TUS Frame				
	Ports for High-Vacuum				
Customer's Scope	All Facilities and Utilities up to the Furnace and Equipment's termination points				

<sup>1</sup> in cold, empty, clean and dry furnace with fine vacuum pump set

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