CAPEX Project – RFQ Questionnaire – Vacuum Heat Treatment Furnace

Dear Valued Customer,

Thank you for showing interest ALD Vacuum Technologies India Pvt Ltd (ALD India). Please refer to the below RFQ for Vacuum Heat Treatment Furnace technical specifications and Company-related information's. If you are not aware of the furnace models (or) cannot determine your workspace dimensions, ALD India can recommend the furnace size best suited for your requirement. We kindly request you to provide all the information's, as much as you can, for a clear understanding your organization and your product requirement to serve you better. Thank you for your time and understanding.

Customer's Background				
Company Name				
Address				
Business Type	Manufacturer	Assembly	Heat Treater	
Industry Type	Aerospace	Automobile	Defence	Others
	Turbine	Energy	Tools & Die	
Company's Revenue (FY 23-24)				
Key Contact(s) Name	Mobile Number(s)		E-mail(s)	

CAPEX Project Details/ Funding Approval Status		
	Yes	No
Is already operating vacuum treatment?		
If yes to the above, how many vacuum HT furnaces are installed and running?		
Is the intended project a green-field?		
Does the current factory have space for production, in case of expansion?		
The inquiry is only for the budgeting purpose to get Top Management approval		
The inquiry is firm to take a decision of project execution (technical/commercial)		
Whether the intended project got approved from Top Management?		
Whether the CAPEX was allocated and approved by Top Management?		
What is the timeline planned to execute the intended project?	Months	
Other information's:		

Operations/ Existing Heat Treatment Facility	
Type of existing Heat Treatment	
Annual production volume of existing Heat Treatment	
Future Expansion plan of production volume / year	
Throughput Required	
Other information's, if any.	

Heat Treatment Process Details			
Process Details		Max Process Temp (°C)	Operating Vacuum for Process (mbar)
	Hardening		
	Tempering		
	Annealing		
	Ageing		
	Any Other(s)		
	Any Other(s)		
	Carburizing		
	Brazing		
	Degassing		
	Sintering		
	Melting		
	Any Other(s)		

Production Information					
Name of the Materials to be heat treated					
Size of the materials to be heat-treated (mm)	Height:		Length:		Width:
	Diameter:		Length:		
Weight of Each Part (Kg)					
Number of Parts/ Load					
Total Load (Kg)/ batch					

Metallurgical Process Parameters of Materials to be treated					
	Achieved @ non-vacuum HT process	Desired @ Vacuum HT process	After Quenching		After Tempering
			Helium	Nitrogen	
Case-Depth (micron)					
Surface Hardness (mm)					
Core Hardness (mm)					
Distortion (mic)					
Other(s)					

Vacuum Heat Treatment Furnace - Design Parameters & Technical Specifications				
ALD's Furnace Model	Single-Chamber Gas Quench (for smaller, batch production volume)			
	MonoTherm – 334		MonoTherm – 446	
	MonoTherm – 669		MonoTherm – 9912	
	MonoTherm – Custom Size (1)			
	MonoTherm – Custom Size (2)			
	Multi-Chamber Gas Quench (larger, continued production volume)			
	ModulTherm – Quench Cart and Energy chain capable of handling up to 2 + 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 Treatment Chambers			
	For Oil Quench (DualTherm) (for smaller, batch production volume)			
	DTO - 446		DTO - 6075100	
	DTO Custom Size (1)			
Furnace Build				
Standards				
Aerospace	AMS 2750 E / F / G			
Instrumentation	Class II or III			
Vessel Mfg.	AMSE Div.8			
Gas Tank	PESO			
Vessel				
Vessel MOC (Outer/Inner layer)	SS/SS	SS/CS	CS/SS	CS/CS
Loading Configuration	Horizontal		Vertical	
Hotzone Load Capacity				
Hotzone				
Hot Zone Type	Cubical		Hexagonal/ Round	
Hot Zone Insulation	Graphite		All-metal	
Hotzone Size	Length,mm:	Width,mm:	Height,mm:	
Hotzone Load Capacity				
Temperature				
Design Temp.				
Working Temp.				
Heater Materials	Graphite		Metal	
Heat Rate (°C/min)	Min:	Max:		
Heating with load	From Temp.:	To Temp:	Time:	
Temperature Uniformity (+/- °C)				
Cooling with load	From Temp.:	To Temp:	Time:	
Cool Rate (°C/min)				
Heat Rate (°C/min)	Min:	Max:		
Vacuum				
Vacuum (mbar)	Design	Max. Working	Ultimate	

Leak Rate (mbar l/s)				
Pressure (mbar)	Design pressure			
	Max. working pressure			
Type of Environment	Nitrogen	Argon	Helium	
Type of Quench Gas	Nitrogen	Argon	Helium	
Quench Pressure (mbar)				
Convection Heating (Gas Heating)				
Max. convection heat pressure			bar (abs)	
Max. convection heat temperature			^{O}C	
Convection fan motor power			kW	
Partial Pressure			mbar	
Gas (Nitrogen) Supply				
Inlet pressure required			bar	
Consumption of gas at a given bar per one quench			Nm^3	
Consumption of gas at 1 bar Per Convective Heat			Nm^3	
Consumption of gas for pneumatic operations per cycle			Nm^3	
Cooling Water				
Inlet pressure required			bar	
Inlet water temperature			°C	
Flow rate during normal operation			m^3/hr	
Flow rate during quenching operation			m^3/hr	
Electrical Connections				
Electrical supply	415 V AC +/- 10%, 3 Phase,50 Hz			
Connected Load	Power, KW:		Current, Amps.	

Oil Quench		
Maximum filling of quench oil		Ltrs
Pressure during the quenching		mbar
Temperature		°C
Quench oil		Preferred Brand Name

Equipment Finish		
Furnace body color		
Furnace door color		
Control panel		

Furnace Dimension			
Furnace Size			
Furnace Weight			

Scope of Supply			
	MonoTherm	DualTherm	ModulTherm
Vacuum HT Furnace			
Convective Fan			
Wash Machine			
Pre-Ox Furnace			
Vac. Tempering Furnace			
Manual Loader			
Battery-operated Loader			
Load Rack (Charge-Grid)			
Fixture(s) for CG			
Load Table			
Unload Table			
Nitrogen Gas Buffer Tank			
Argon Gas Buffer Tank			
Helium Buffer Tank			
Closed-loop Water System			
Chiller			
Others, if any.			