

BOGH INDUSTRIES FURNACE PROPOSAL QUESTIONNAIRE

For

The purpose of this questionnaire is to obtain information which will lead to the best possible design, engineering, and construction of industrial heating equipment.

1. THE CUSTOMER

Company		Date	
Address			
City	State	Zip	Country
Name		Title	
Phone	Fax	e-mail	
Equipment to be located at			

- Firm Detailed Proposal Date Proposal Required _____
 Budgetary Planning Proposal Anticipated Purchase Date _____
 Technical Recommendation Anticipated Delivery Requirement _____
 Copies Required: 1 2 3 4

2. THE APPLICATION

- A. General Type of Furnace or Process: Batch Continuous
- B. Heat Process:
- | | | |
|--|--------------------------------------|----------------------------------|
| <input type="checkbox"/> Drawing | <input type="checkbox"/> Normalizing | <input type="checkbox"/> Forging |
| <input type="checkbox"/> Tempering | <input type="checkbox"/> Hardening | <input type="checkbox"/> |
| <input type="checkbox"/> Stress Relieving | <input type="checkbox"/> Cure | <input type="checkbox"/> |
| <input type="checkbox"/> Solution Treating | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Aging | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Annealing | | <input type="checkbox"/> |
- C. Atmosphere Air
 Other.

(Include customer's specifications if available.)

3. THE PART

If there is a variety of parts or pieces to be run in the same furnace, please supply answers to the questions for EACH individual part. The furnace must be designed to process all the parts.

A. Material (SAE steel, brass, aluminum, etc.)

B. Part Description

C. Part Weight

D. Part Size

E. Part Maximum Section

F. Bulk Density (Lbs./Cu. Ft.)

G. Make sketch of part or furnish a print - THIS IS IMPORTANT!

H. Are parts free from burrs, protrusions, flashing, etc. that might interfere with free and uniform handling of the parts? Yes No

IMPORTANT One (1) part or piece must be used to size and rate the furnace. Other parts run in the furnace will give more or less production depending upon their size, shape, and weight. Pick this part and give its size, shape, weight, loading per square foot, and heat profile. Include specific time in furnace, temperature or case requirements.

PRODUCTION

The size of the furnace is determined by (1) the total production in lbs. or pieces per hour, and (2) accurate determination of the loading in lbs. per square foot on the conveyor, trays or hearth. Please develop this important information carefully and accurately.

A. Production Rate: Lbs. per hour _____ Pieces per hour _____

Remember - only one (1) piece or part must be used to size and rate this furnace, so specify the piece or part.

B. Hours furnace operates per
day _____

C. Average loading: Lbs. per square foot _____ Pieces per hour _____

D. Can parts be bulk loaded? Yes No

E. Work is to be handled on: Trays Fixtures Conveyor
Other _____

Indicate which and sketch below the arrangement to determine furnace loading.

Notes:

SKETCH:

F. Does the customer have a preferred type or size of container or tray? If so, sketch and describe fully with dimensions (L, W, H).

Supplied by: BI Customer

Weight of containers, trays, and/or fixtures: _____

G. With respect to conveyor or mechanisms within the furnace, does the customer have any experience with an arrangement that has been satisfactory for these parts?

5. THE HEATING CYCLE

A. If this inquiry describes a furnace other than a forced convection furnace and a forced convection furnace is to be included in the proposal, please fill out a separate questionnaire.

1. Please indicate the actual maximum temperature needed as construction costs increase in temperature steps shown.

Up to 750°F 1000°F 1250°F 1500°F 1750°F 2000°F 2200°F

2. Condition of parts on furnace entry: Clean Oil Coated

C. If other than (A) above, describe:

Type atmosphere? _____

Who is to provide? _____

D. Heating cycle details:

1. At what temperature does material enter furnace? _____

2. To what temperature is material heated? _____

3. Time to come to temperature? _____

4. Time to hold temperature? _____

5. Uniformity of temperature in heated charge? _____

6. Furnace cooling required? _____

If yes: Give rate in degrees F _____

7. Desired furnace discharge temperature of parts? _____

8. Parts are discharged to: Oil Quench Water Quench Caustic Quench

Synthetic Quench Salt Quench Forced Air Quench Still Air

Quench temperature desired: _____

Quench heating required? Yes No If yes, what is source? _____

9. If any special requirements, describe: _____

(Furnish customer specifications if available.)

6. MATERIAL HANDLING OUTSIDE FURNACE

A. Charge end of the furnace: Manually loaded Mechanically loaded

If mechanically loaded, describe conveyor belt, loader or device that delivers work to the furnace:

Describe the mechanism of discharge to the loading station

B. Discharge end of the furnace: Manually unloaded Mechanically unloaded

If mechanical, describe conveyor or mechanism that will take the parts to the next operation:

What kind of device or mechanism would be desirable for unloading the furnace and loading the take away device?

7. INSTRUMENTATION AND ELECTRICAL

A. Temperature control only

B. Temperature control and record

C. Programmable temperature/carbon control

D. Programmable temperature/carbon control and record

E. Manufacturer preference (specify model[s] for control and record:

F. Electrical: Standard Customer's (if checked, supply specs)

Relay logic PLC logic

8. FACILITIES (Space limitations, if any)

Floor Space _____ x _____ Height _____ Access Door _____ W x _____ H

Check Services Available 460 volts, 3, 60 230 volts, 3, 60

Natural gas at _____ Btu/cu ft at _____ psi _____ Plant air at _____ psi

Cooling water at _____ °F maximum Steam at _____ °F _____ psi

9. NON-STANDARD OPTIONS OR SPECIAL REQUIREMENTS

Are there any special components?

- Incinerator
- Transformer
- Heat Exchanger
- Water Cooler
- Analyzers

Other _____

Notes:

