

SYNHTE PRODUCT CATALOGUE

Vacuum Furnace Product Catalogue

Application-led selection for vacuum brazing, heat treatment, sintering, atmosphere processing and pressure-assisted systems.

A practical map from material and process requirement to the appropriate SYNTE furnace family.



20+

Furnace models

3

Core system families

Custom

Engineered configurations

Global

Project support

Use this document to

Screen the application, compare reference configurations, identify the engineering variables that change the proposal, and define measurable quotation and acceptance inputs.

Current online reference

<https://syn-v2.com/vacuum-furnace-systems/>

All published values are reference data for preliminary selection. Final configuration, supply scope and acceptance conditions are controlled by the project proposal and technical agreement.

SYNHTE APPLICATION-LED ENGINEERING

01 / COMPANY

SYNHTE engineering and manufacturing scope

Henan Synthe Corporation develops, manufactures and supports vacuum furnace equipment and provides related vacuum brazing and heat-treatment process services.

Engineering team

More than 50 professional technicians; the current company profile states that core engineers have more than 20 years of industry experience.

Product range

More than 20 models across brazing, quenching, carburizing, annealing, tempering, sintering and specialized systems.

Manufacturing

Machining, assembly, painting, testing and storage capabilities support customized furnace projects and documented project release.

Process support

Vacuum brazing, heat-treatment trials and outsourcing connect equipment selection with real workpieces and inspection criteria.

Configuration approach

The proposal is built from material, load, cycle, throughput, utilities and acceptance—not from model name alone.

Project route

Technical review, agreement, manufacture, FAT/documentation, installation and SAT/process handover according to the agreed scope.

Current company references

15+ years industrial experience | annual output reference 200+ | CE & ISO certified.
Project-specific certificates and supplied scope should be confirmed with the proposal.

SYNHTE APPLICATION-LED ENGINEERING

02 / PRODUCT FAMILY

Vacuum brazing

Use this page to identify the process route. Open the corresponding detailed technical guide for model data, configuration drivers and RFQ inputs.

VTB Aluminum Vacuum Brazing

Reference models and selection data for flux-free brazing of aluminum thermal assemblies.
Reference: 750°C maximum temperature; 6×10^{-4} Pa ultimate vacuum; $\pm 3^\circ\text{C}$ temperature uniformity

VTHB High-Temperature Vacuum Brazing

Selection data for clean brazing of stainless steel, titanium, superalloys, carbide and precision assemblies.
Reference: 1300°C maximum temperature; 6×10^{-4} Pa ultimate vacuum; $\pm 5^\circ\text{C}$ temperature uniformity

VTM Vacuum Diffusion Bonding & Brazing

Pressure-assisted high-vacuum joining data for plate stacks, cooling structures and precision alloy assemblies.
Reference: 1200°C maximum temperature; $\leq 5 \times 10^{-3}$ Pa working vacuum; 200 T hydraulic press

Continuous Vacuum Brazing

A configuration guide for stable part families, defined takt and automated brazing-line integration.
Reference: 750 / 1300°C thermal platform options; Vacuum / gas process boundary; Continuous production flow

Selection checkpoint

Confirm the complete loaded drawing, qualified process curve and measurable result before fixing chamber size, pump package, cooling system or automation scope.

03 / PRODUCT FAMILY

Vacuum heat treatment

Use this page to identify the process route. Open the corresponding detailed technical guide for model data, configuration drivers and RFQ inputs.

VTHB High-Temperature Vacuum Brazing

Selection data for clean brazing of stainless steel, titanium, superalloys, carbide and precision assemblies.
Reference: 1300°C maximum temperature; 6×10^{-4} Pa ultimate vacuum; $\pm 5^\circ\text{C}$ temperature uniformity

VTG Vacuum Gas Quenching

Reference configurations for high-vacuum heating and 6 / 10 bar inert-gas cooling.
Reference: 1320°C maximum temperature; 6×10^{-3} Pa ultimate vacuum; 6 / 10 bar cooling pressure options

VTO Vacuum Oil Quenching

Reference configurations for double-chamber vacuum hardening and controlled oil quenching.
Reference: 1320°C maximum temperature; 4×10^{-1} Pa ultimate vacuum; $\pm 5^\circ\text{C}$ temperature uniformity

VTA Vacuum Annealing

Selection data for clean batch annealing, stress relief, bright heat treatment and controlled thermal cycles.
Reference: 1300°C maximum temperature; 5×10^{-4} Pa ultimate vacuum; 100-1500 kg load range

VTH Vacuum Tempering

Configuration guide for post-quench tempering, stress relief and bright heat treatment.
Reference: 700°C ni-cr package; 1100°C molybdenum package; 100-1000 kg reference load

FZSC2 Vacuum Carburizing

Low-pressure carburizing and carbonitriding configurations with gas- or oil-quench routes.
Reference: 1320°C maximum temperature; 300-2000 Pa carburizing range; 6-16 bar gas-quench options

Selection checkpoint

Confirm the complete loaded drawing, qualified process curve and measurable result before fixing chamber size, pump package, cooling system or automation scope.

04 / PRODUCT FAMILY

Vacuum sintering & advanced materials

Use this page to identify the process route. Open the corresponding detailed technical guide for model data, configuration drivers and RFQ inputs.

VTS Multipurpose Vacuum Sintering

Selection guide for vacuum, protective-atmosphere and integrated debinding / sintering applications.

Reference: 1300 / 2200°C mo / graphite maximum; 4 × 10⁻³ Pa ultimate vacuum; ±5°C temperature uniformity

HVF Additive Manufacturing Sintering

Metal-hot-zone furnace data for binder-based additive manufacturing and controlled sintering cycles.

Reference: 1550°C maximum temperature; 1350°C long-term reference; 400×250×250 mm published work zone

HQH-1200 Hydrogen Atmosphere Tube

Reference configuration for controlled hydrogen, nitrogen or argon heat treatment and sintering.

Reference: 1100°C continuous operation; Ø480×600 mm tube reference; ±1°C control accuracy

VTSL Bottom-Loading Vacuum Sintering

Vertical loading configurations for tall, heavy or large-diameter sintering loads.

Reference: Ø350-2300 mm published diameter span; 200-1500+ kg load examples; 1350-2000°C published classes

MIM Vacuum Debinding & Sintering

Five-model platform for integrated binder removal, vapor capture and controlled sintering.

Reference: 1600°C maximum temperature; 5 models published range; 2-6 zones heating architecture

VMPE 100T Vacuum Hot Press

Reference technical data for pressure-assisted densification and high-temperature material processing.

Reference: 100 T rated press force; 1600°C maximum temperature; 9×10⁻⁴ Pa ultimate vacuum

Selection checkpoint

Confirm the complete loaded drawing, qualified process curve and measurable result before fixing chamber size, pump package, cooling system or automation scope.

05 / MODEL MATRIX

Published product-family envelope

The ranges below consolidate current reference information. Final models and project values are confirmed in the proposal and technical agreement.

Family	System	Reference values	Typical fit
VTB	Aluminum Vacuum Brazing Furnace	750°C 6×10^{-4} Pa $\pm 3^\circ\text{C}$	Aluminum plate-fin heat exchangers
VTHB	High-Temperature Vacuum Brazing Furnace	1300°C 6×10^{-4} Pa $\pm 5^\circ\text{C}$	Stainless-steel heat exchangers and assemblies
VTG	Vacuum Gas Quenching Furnace	1320°C 6×10^{-3} Pa 6 / 10 bar	Tool and die steels
VTO	Vacuum Oil Quenching Furnace	1320°C 4×10^{-4} Pa $\pm 5^\circ\text{C}$	Tool steel and mold steel hardening
VTS	Multipurpose Vacuum Sintering Furnace	1300 / 2200°C 4×10^{-3} Pa $\pm 5^\circ\text{C}$	Powder-metallurgy components
VTM	Vacuum Diffusion Bonding & Brazing Furnace	1200°C $\leq 5 \times 10^{-3}$ Pa 200 T	Titanium and stainless-steel plate stacks
Continuous	Vacuum Brazing Furnace	750 / 1300°C Vacuum / gas Continuous	Repeat aluminum, stainless, copper or high-temperature assemblies
VT A	Vacuum Annealing Furnace	1300°C 5×10^{-4} Pa 100-1500 kg	Stainless-steel bright annealing and stress relief
VTH	Vacuum Tempering Furnace	700°C 1100°C 100-1000 kg	Tool, mould and high-speed steels after hardening
FZSC2	Vacuum Carburizing Furnace	1320°C 300-2000 Pa 6-16 bar	Gears, shafts and transmission components
HVF	Additive Manufacturing Sintering Furnace	1550°C 1350°C 400×250×250 mm	Binder-based metal additive manufacturing parts
HQH-1200	Hydrogen Atmosphere Tube Furnace	1100°C Ø480×600 mm $\pm 1^\circ\text{C}$	Hydrogen, nitrogen or argon heat treatment
VTSL	Bottom-Loading Vacuum Sintering Furnace	Ø350-2300 mm 200-1500+ kg 1350-2000°C	Tall or large-diameter production loads
MIM	Vacuum Debinding & Sintering Furnace	1600°C 5 models 2-6 zones	Metal injection moulding feedstocks
VMPE	100T Vacuum Hot Press Furnace	100 T 1600°C 9×10^{-4} Pa	Technical ceramics and composite materials

06 / PROJECT DEFINITION

Six inputs that prevent under-specified quotations

Send the same structured inputs to each supplier so technical scope and commercial comparisons remain aligned.

01 Material

Exact grade/feedstock, starting state, binder/filler, contamination limit and target result.

02 Complete load

Largest part plus trays, fixtures, setters or carrier; arrangement, gross mass and center of gravity.

03 Process cycle

Temperature, vacuum/gas, ramp, soak, cooling/quench, unload and existing qualified route.

04 Production

Good parts/batch or hour, shifts, yield, changeover, uptime and future capacity allowance.

05 Site

Power, cooling water, gases, exhaust, air, floor/loading, climate and integration interfaces.

06 Acceptance

Test methods, standards, sensors, samples, pass limits, FAT/SAT witness points and records.

Output of the engineering review

Recommended furnace route and preliminary configuration; reference work zone and load basis; vacuum/gas/cooling architecture; utility and layout boundaries; controls/records scope; proposed FAT/SAT and open technical questions.

07 / ACCEPTANCE

From equipment specification to qualified production

A furnace purchase is complete only when the equipment boundary, performance test and process-result evidence are aligned.

01	02	03	04	05
Application review	Technical agreement	Manufacture	FAT	SAT / handover
Material, load and result	Scope and acceptance	Build and internal checks	Agreed factory evidence	Site checks and training

Evidence block	Examples to define in the project
Thermal	Survey/witness-load condition, sensor map, stabilization and allowable variation
Vacuum / gas	Pump-down, working/ultimate pressure, pressure rise, gas purity/flow and test state
Cooling / quench	Load, gas/oil condition, cooling result, unload target and cycle time
Controls	Recipes, roles, interlocks, alarms, records, export and plant handshake
Process result	Leak, joint, hardness, case, density, shrinkage, dimensions or metallurgy as applicable
Documentation	Drawings, utilities, manuals, parts list, certificates and test reports in agreed language

08 / CONTACT

Start with the application, not a model number

SYNHTE can review equipment supply, process trials or outsourcing routes depending on project maturity and production demand.

Channel	Details
Email	info@synthe-corp.com
WhatsApp	+86 155 3785 7393
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Website	https://syn-v2.com/
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Recommended first message

Company and location; part/material; process target; largest complete load; production rate; utilities; required acceptance; drawing attachment; expected project timing.

Equipment

Vacuum brazing, heat treatment, quenching, carburizing, annealing, tempering and sintering systems.

Special platforms

Continuous lines, diffusion bonding, bottom loading, MIM/additive, tube atmosphere and hot pressing.

Services

Vacuum brazing and heat-treatment trials, small-batch development and OEM/contract processing.

Website resources

Use the Downloads library for individual specifications, selection guides and the detailed RFQ checklist.