ULVAC

For more than half century, ULVAC's thermal technology equipment has contributed to the industrial world

since 1957
When our first large size vacuum melting system was installed in japan and theroughout japan's economical high speed growth, our vacuum thermal technology has been recognized with the highest quality and innovative technology supporting the Industry.
ULVAC has now grown to a global company with extended capability to provide our customers our thermal technology solution.

In 1957 the 1st vacuum induction melting furnace was installed by ULVAC.
Our lineup for vacuum thermal technology has grown to support our customer's success in versatile industries.

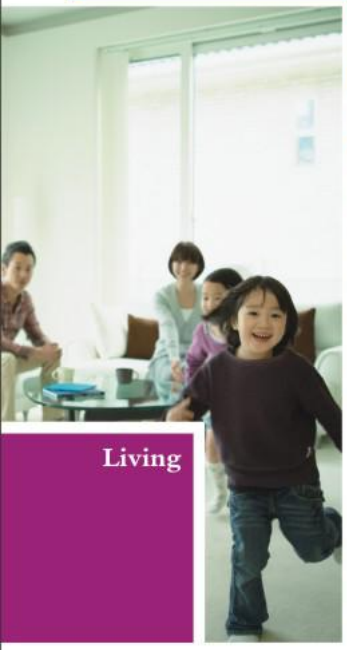
— Since —
1957

Applications

Scene 1

Everyday Life

Vacuum heat treatment and vacuum melting technologies are widely used in our surrounding life.
ULVAC has contributed to various industries for over 50 years.


Living


1


2


3


4


5


Wind–generated electricity
6

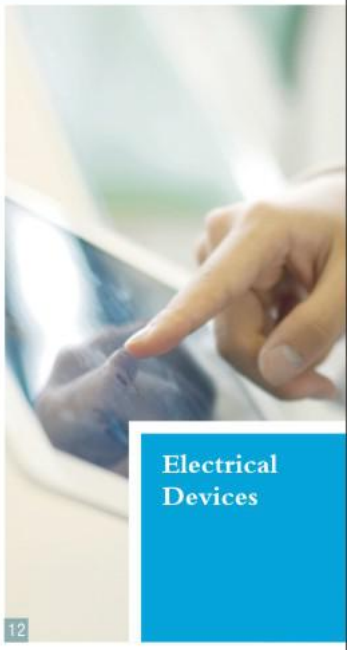

7


City
8


9


10


11


Electrical Devices
12

1 Cutleries
Brightening:FHH,FHV Series

2 Thermos Bottle
Brazing:FBC,COMBAT,FHH Series

3 Daily Use
Quenching,Tempering:FHH,FHV,COMBAT Series

4 Air Conditioner/Heat Exchanger
Brazing:FBC,COMBAT,FHH Series

5 General Tools/Industrial Machine Tools
Quenching,Tempering:FHH,FHV,COMBAT Series

6 Magnetic Materials
Melting,Hydrogen,Sintering,Aging:FMI,FVI,FSC,COMBAT,FHH Series

7 High Speed Rail,Subway/Heat Exchanger
Brazing:FBC,COMBAT Series

8 Substation System/Vacuum Circuit Breaker
Brazing:FHH,FHV,COMBAT Series

9 Digital Devices (PC,tablet)/Electronic Components(Ta capacitor)
Sintering:FSC,COMBAT Series

10 PC(electric device)/Heat Exchanger
Heat treating:COMBAT Series

11 Lighting/Quartz Tube
Degassing:FV Series

12 Optical Fiber
Sintering:FVSC Series

Applications

Automobile

ULVAC is recognized as a leader of vacuum heat treatment technology and equipment provider for the automotive industry.

Scene 2

1 Cam Shaft/Sintered Metal
Sintering:FSC,COMBAT Series

2 Radiator/Intercooler
Brazing:FBC,COMBAT Series

3 Nd magnet for Hybrid car
Melting,Sintering,Heat Treating:FMI,FVI,FSC,COMBAT,FHH Series

4 Metal Carrier(Catalyst)/Silencer Internal Part
Brazing,Sintering:FHH,FBC,COMBAT Series

Fuel Pipe
Brazing : FHH,FBC,COMBAT Series

5 EGR Cooler
Brazing : FBC,COMBAT Series

Radiator
Brazing:FBC,COMBAT Series

Oil Cooler
Brazing:FBC,COMBAT Series

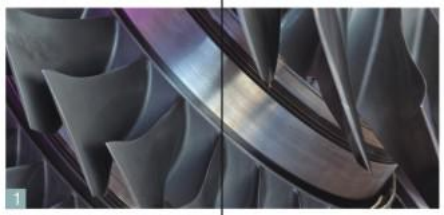
6 Bearing · Gear
Heat Treating:FHH,COMBAT Series

Applications

Scene 3

Aircraft・Aerospace

ULVAC has contributed to the aircraft & aerospace industry by providing our state of the art vacuum heat treatment and vacuum melting technologies.
Metal parts used in aircraft and aerospace industries are manufactured through our production systems with highly stable process.



1

2

Aircraft

3

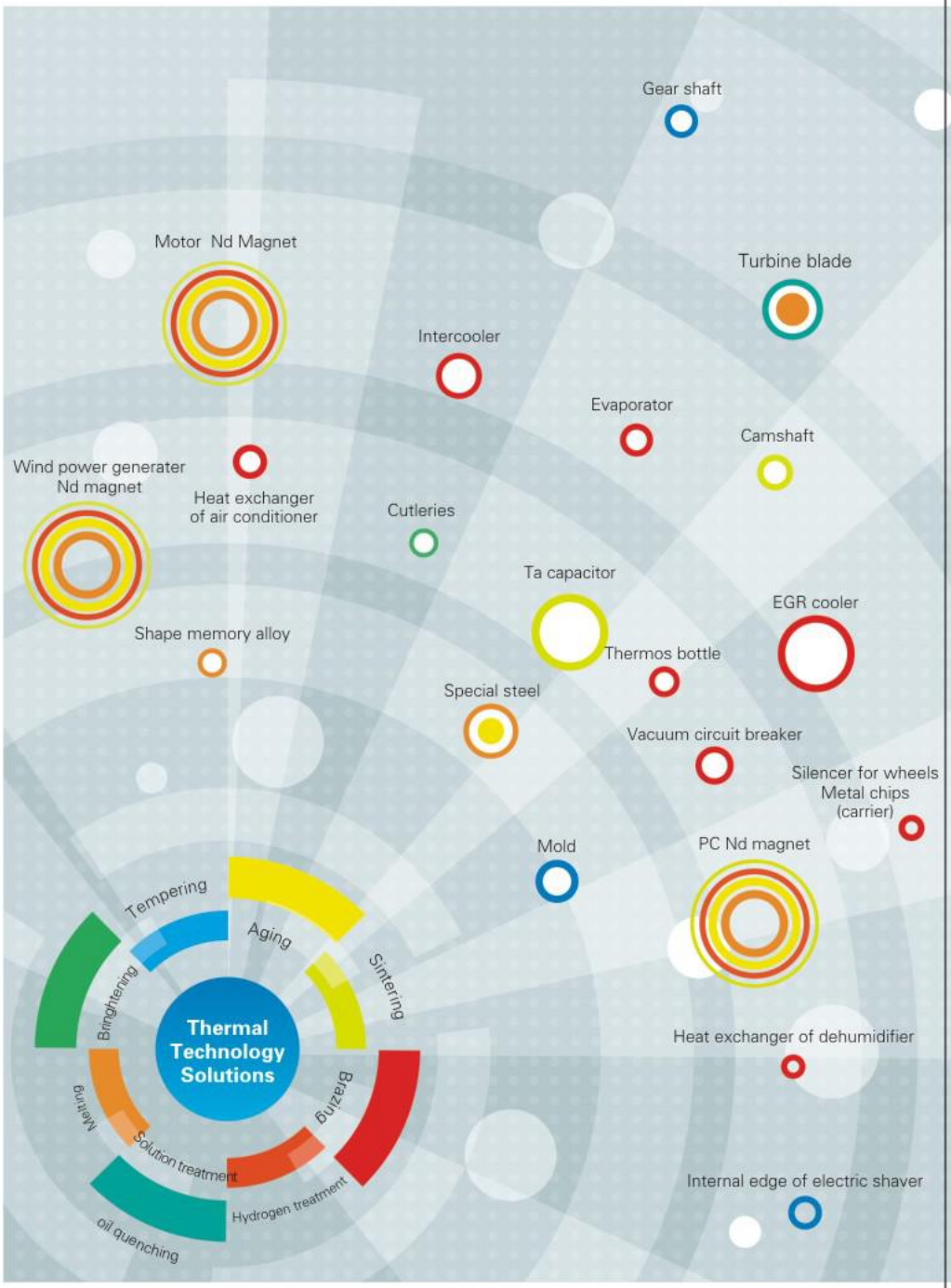
Rocket

1 Gas Turbine
Melting,Heat Treating:FMI,FVI,FHH,FHV,COMBAT Series

2 Gear tool
Melting,Heat Treating:FMI,FVI,FHH,FHV,COMBAT Series

3 Rocket Engine Nozzle
Brazing:FHV,COMBAT Series

Photo provision source : JAXA



Thermal Applications

Rocket engine nozzle

Radiator

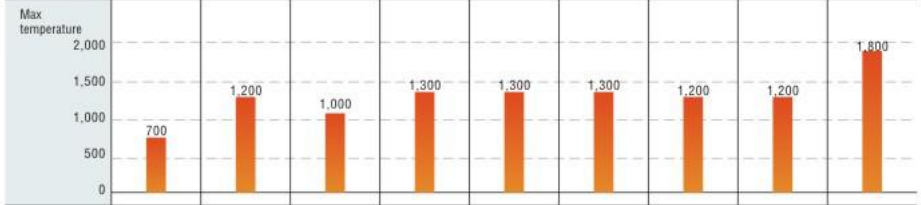
ULVAC can provide specific equipment solution acc.to different applications customers required

Thermal Applications		Brazing	Sintering	Quenching	Tempering Annealing	Oil Quenching	Brightening	Aging	Hydrogen treatment	Solution heat Treatment	Melting
Lnline Hanger type		◎	◎	○	○		○	◎		◎	
Lnline Roller type		◎	◎	○	○		○	◎	◎	◎	
Lnline Fork type		◎	◎	◎	◎	◎	◎	◎	◎	◎	
Load Lock Horizontal		◎	◎	◎	◎	◎	◎	◎	○	◎	
Load Lock Vertical		◎	○	◎	◎		◎	◎		◎	
Batch		◎	◎	◎	◎		◎	◎		◎	
Melting											◎

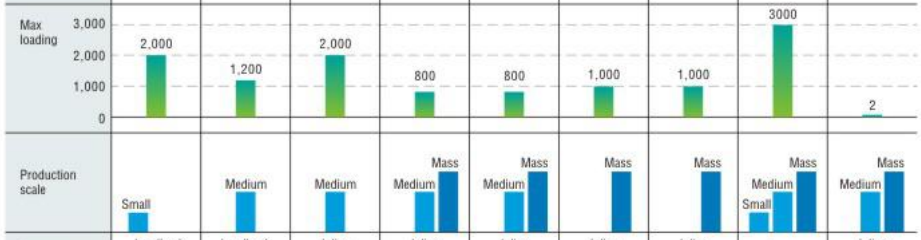
◎ ULVAC Experience ○ Possible to adjust

Heat Treatment Furnace Equipment Selection Matrix

Heat treatment	Hydrogen treatment	Sintering	Aging	Sintering	Quenching	Tempering annealing	Brightening	Solution heat treatment	Sintering
Common processing material	Permanent nd-fe-B magnet alloy	Permanent nd-fe-B magnet alloy	Permanent nd-fe-B magnet alloy	Superhard alloy, stainless steel, structure steel, steel for tools etc	Medium carbon steel,high carbon steel,steel for tools, stainless steel (martensite),cast steel,mould steel, high speed steel	Carbon steel, steel for tools, stainless steel (ferrite) (martensite) (austenite),cast	Stainless steel, Cu,etc	Stainless steel, (ferrite) (martensite) (austenite),cast steel	Ta capacitor powder metallurgy
Processing temperature (℃)	550	1,100	500-950	1,050-1,200	750-1,150	~1,000	~1,100	~1,100	1,400-1,600
Applicable equipment(*1)	①⑤	①④⑥	①③⑤⑦⑧	④	①②③⑤	①②③⑤⑦⑧	①~⑧	①~⑧	⑨



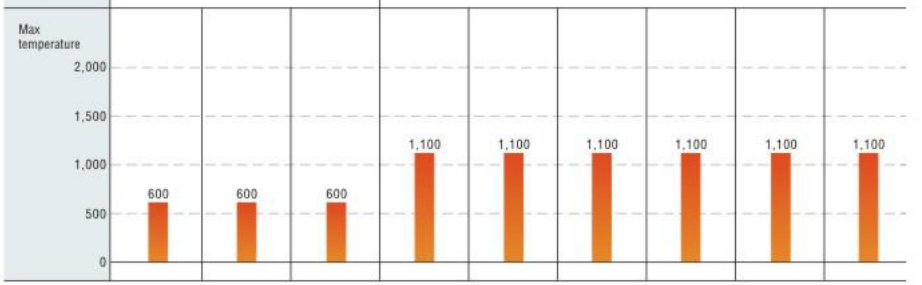
Series name	FHH	FHV	FHH	FSC	FHH	FSC	FHH	COMBAT	FSC
Applicable equipment(*2)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
Max loading (product+jigs)	2,000kg	1,200kg	2,000kg	800kg	800kg	1,000kg	1,000kg	3000kg	2kg
Furnace type	LoadLock (Horizontal)	LoadLock (Vertical)	Inline (Fork type)	Inline (Roller type)	Inline (Roller type)	Inline (Continuous)	Inline (Continuous)	Batch	Inline (Lifting type)
Max temperature(℃)	1,350	1,350	1,350	1,200	1,200	1,200	1,200	1,300	1,800
Number of chamber	2	2	3	3 chambers or more (Multi-chamber structure)	3 chambers or more (Multi-chamber structure)	3 chambers or more (Multi-chamber structure)	3 chambers or more (Multi-chamber structure)	1	3 chambers or more (Multi-chamber structure)



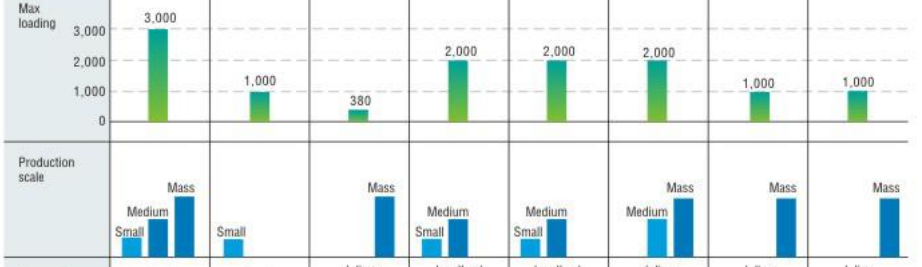
*1number responds to the equipment identified in *2

Brazing Furnace Equipment Selection Matrix

Heat treatment	Vacuum brazing								
Based material	Al alloy			Stainless steel,Carbon steel,Cu,Ti alloy					
Brazing material	Al alloy			Cu,Ag,Ni					
Processing temperature(℃)	600			600~1,100					

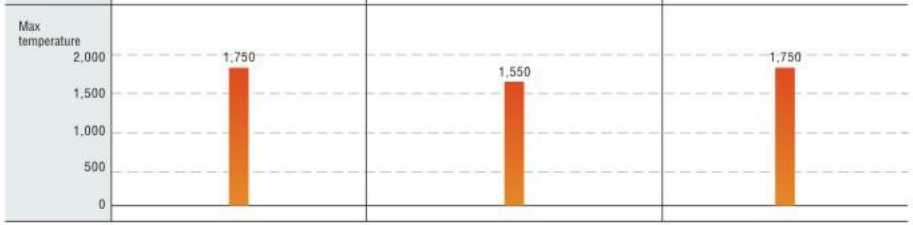


Series name	COMBAT	FBB	FBC	FHH	FHV	FHH	FBC	FHH
Max loading (product+jigs)	3,000kg	1,000kg	380kg	2,000kg	2,000kg	2,000kg	1,000kg	1,000kg
Furnace type	Batch	Batch	Inline (Hanger type)	LoadLock (Horizontal)	LoadLock (Vertical)	Inline (Fork type)	Inline (Hanger type)	Inline (Roller type)
Max temperature(℃)	1300	700	700	1,350	1,350	1,350	1,250	1,350
Number of chamber	1	1		2	2	3	3 chambers or more (Multi-chamber structure)	3 chambers or more (Multi-chamber structure)

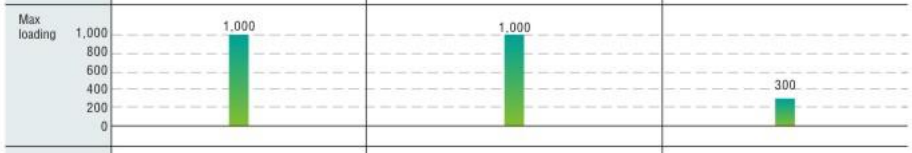


Melting Furnace Equipment Selection Matrix

Melting process	Vacuum Melting		
Heat source	Induction Heating	Induction Heating	Induction Heating
Example of final product	Mechanical parts	Magnets,Hydrogen storage alloys	Shape-memory alloy,precision casting parts
	Tool bit,pinion cutter,pincers,mould,bearing	Nd magnets,SmCo magnets,LaNi based hydrogen storage alloy	Antenna,turbin blade
Common processing material	Iron based alloy	Rare earth metal	Ni based alloy
Processing temperature(℃)	1,750	1,550	1,750



Series name	FMI,FVI	FMI,FVI	FMI,FVI
Max loading (product+jigs)	1,000kg	1,000kg	300kg



Production scale	Medium, Mass	Small, Medium, Mass	Small, Medium
Furnace type	Half-continuous	Batch	Half-continuous

ULVAC SOLUTIONS

Outstanding experience and knowledge in the field delivering optimum solutions

ULVAC (Shenyang) Co., Ltd.

Scene 1

Vacuum Induction Melting Furance

①FVIM-III-1000
②FVIM-600
③FVIM-50

Products Application

Precision Casting
High Temperature Alloy
Physics Purification

The casting methods

General Ingot Mold
Single-side Water Cooling Plate Mold
Double-side Water Cooling Vertical Mold
Gas Cooling Vertical Mold

Technical Parameter

Model	Raw Material	Loading Capacity	Medium Frequency Power	Max Melting Temperature	Ultimate Vacuum	Feature		Products
						Water Cooling Rotary Disk	Double-side Water Cooling Vertical Mold	
FVI-50-M	Nd-Fe-B Alloy	50kg	100kW	1650℃	5×10^{-3}Pa	·	·	Ingot Molds
FVI-300-M		300kg	300kW			·	·	
FVI-600-M		600kg	600kW			·	·	

Model	FVIM-600M	FVIM-1000M
Raw Material	Fe,Ni,Fe-Based Alloy,Ni-Based Alloy,Nonferrous Metals,Polysilicon	
Loading Capacity	600kg	1000kg
Medium Frequency Power/Frequency	600kW/0.8kHz	800kW/0.8kHz
Time to Pour	90 minutes	120 minutes
The Pressure after Pouring	1.3×10^{-1}Pa(10^{-3}Torr)	
Options	Uniformity zone for steel melting,Quality analysis system,Rotary separated casting mechanism,Oxygen content analysis meter,Auto melting system,Infrared radiation temperature measuring instrument,TV monitoring system, Ar charging device,Low-temperature operating panel,Single direction stirring system.	
Remarks	Batch type,Double-Chamber,Half-Continuous,Continuous	

ULVAC (Shenyang) Co., Ltd.

Scene 2

Vacuum Melting and Strip Casting Furnace

FMI- Ⅱ-600RC

FMI- Ⅰ-600RC

Products Feature

Constant Casting
Water Cooling Roller
Uniform Casting Slices
High Production, Energy Saving

Products Application

Rare Earth Permanent Magnet
Hydrogen Storage Alloy

Technical Parameter

Model	Raw Material	Loading Capacity	Medium frequency power	Max Melting Temperature	Ultimate Vacuum	Features			Products	Dimension L×W×H(m)
						Water Cooling Chill Roller	Water Cooling Rotary Disk	Receiving Tank		
FVI - 50-SC	Nd-Fe-BAlloy	50kg	100kW	1650℃	5×10^{-3}Pa	·	·	·	Thin Slices	6×6×4
FVI - 300-SC		300kg	350kW		1×10^{-2}Pa	·		·		10×9×6
FMI-I-600RC	Ni-H Alloy	600kg	600kW		0.4Pa	·		·		13×11×8
FMI-II-600RC		600kg	600kW		0.4Pa	·		·		13×11×8

ULVAC (Shenyang) Co., Ltd.

Scene 3

COMBAT Batch Type Vacuum Furnace

Products Feature

- The furnace based on new integrated modularized design, saving space, specialized in high temperature heat treatment rapidly and efficiently .It can work with DC power supply, saving energy, operating quietly,less pollution and saving operating gas .
- Easy operation. Not only for traditional heat treatment but also for complicated process.
- Reasonable arrangement of heating components, optional insulating material, good temperature uniformity, efficient cooling system, high automatic operation, remote control and fault diagnosis, high safety and reliability.
- The furnace can do heat treatment like quenching, annealing, solution, brazing and sintering on different metal and non-metal parts.
- It has many advantages such as anti-oxidation and anti-decarbonization, less deformation, good quality. It can process various treatment with different configuration
- Applying to heat treatment such as bright quenching, bright annealing, solution treatment, bright tempering, vacuum degassing, vacuum hardening, as well as copper brazing and sintering.

Products Application

- Quenching treatment on tool steel,mold steel,high-speed steel,high-carbon and high-chrome steel,etc.
- Solution treatment on stainless steel, Ti alloy and high-temperature alloy steel etc.
- Vacuum annealing and vacuum degassing treatment on reactive metal and infusible metal.
- Annealing treatment on electrical steel,electromagnetic alloy,stainless steel and heat-resistant alloy.
- Vacuum annealing treatment on copper and its alloy,steel, Ti and Ti alloy.
- Vacuum annealing and vacuum tempering treatment on magnetic material such as electrical pure iron and silicon steel sheet.
- Solution treatment and aging treatment on high-temperature alloy of iron based and nickel based.
- Brazing treatment on various heat exchangers, mechanical parts, aeronautical parts and ceramic circuit board
- Sintering treatment on various material,super-hard tool and Mim, etc.

Technical Parameter

Item			Model	305 Standard	406 Standard	609 Standard	614 Standard	812 Standard	1015 Standard	1218 Standard	1518 Standard	Remarks
Performance	Dimension(mm)	Working Zone(mm)	Width	300	400	600	600	800	1000	1200	1500	
			Height	300	400	600	600	800	1000	1200	1500	
			Length	450	600	900	1400	1200	1500	1800	1800	
		Loading Capacity (kg)		100	200	500	1000	1200	1800	2500	3000	Including tray and processing device
	Temperature	Max Temperature		1300℃								It can be designed if higher temperature required
		Working Temperature		500~1250℃								
		Temperature Uniformity		1150℃, within ±5℃								Empty furnace, Measuring 9 points
	Vacuum	Ultimate Vacuum		≤1Pa (3×10^{-3}Pa with diffusion pump)								Empty Furnace,Room Temperature,Fully degassed
		Leaking Rate (pa/hr)		≤0.34								
	Cooling	Cooling Time		within 30/10/8min				within 35/10/8min	within 45/15/13min		within 60min	1150℃-150℃(H/S/B)
		Cooling Air Pressure (H/S/B)		0.09/0.6/1.0MPa · abs						0.09MPa · abs		It can be modified according to requirement from customer.
Operating Requirement	Furnace dimension (W*L*H)(m)			2.8×3.0×2.5	3.4×4.0×3.18	3.55×5.0×3.18	3.55×5.0×3.18	5.2×5.5×4.5	5.5×7.0×4.5	5.5×7.5×5.5	6.5×7.5×6.0	
	Power(kVA)			85	145	220 (1.0MPa: 250)	232 (1.0MPa: 250)	240	470	600	680	
	Cooling Water(m^3/hr)			10	15	20	20	30	40	45	55	
	Ar gas flow(m^3/times)			1.5/9/15	3/18/30	7/42/70	8/48/80	9/54/90	13/78/130	18	35	
	Compressed Air(NL/min)			260	600	600	600	960	960	1500	1500	

ULVAC (Shenyang) Co., Ltd.

Scene 4

Batch Type Vacuum Sintering Furnace

Products Application

Vacuum sintering treatment on Ta capacitor

Technical Parameter

Model	Processing Material	Loading Capacity	Working Zone	Max Temperature	Working Temperature	Temperature Uniformity	Ultimate Vacuum	Leaking Rate
FV-22-WD-V	Ta Capacitor	2.5kg	φ120×200H mm	2100℃	2000℃	±5℃	1×10^{-4}Pa	1.3×10^{-4}Pa · m^3/s

Products Application

Reaching the processing standard of high temperature and high vacuum condition, the furnace is used to produce Ta-products with high performance and high quality

Technical Parameter

Model	Processing Material	Loading Capacity	Working Zone	Max Temperature	Working Temperature	Temperature Uniformity	Ultimate Vacuum	Leaking Rate
FSCn-2060	Ta Capacitor	2.25kg	φ200×60H mm	1800℃	1700℃	±3℃	5×10^{-4}Pa	1.3×10^{-4}Pa · m^3/s

ULVAC (Shenyang) Co., Ltd.

Scene 5

Vacuum Sintering Furnace with Gloves Box

Products Feature

In the conditions of atmospheric protection, load formed blanks into furnace chamber.During the entire process,there is no any contact with air. Excellent sealing performance of gate valve leads to completely separate from gloves box and sintering chamber.

Technical Parameter

Type	Raw Material	Loading Capacity	Maximum Temperature	Temperature Uniformity	Ultimate Vacuum	Pressure Rising Rate	Features	Dimension(m) (Maintenance Space)
FVS-6512-MDG	Sintering Nd-Fe-B	300kg	1300℃	≤±3℃	2.6×10^{-3}Pa	≤0.4Pa/h	Loading Protection	6×6×3.5
FVS-5614-MDG		500kg	1300℃	≤±3℃	2.6×10^{-3}Pa	≤0.4Pa/h		7×6×4

ULVAC (Shenyang) Co., Ltd.

Scene 6

Continuous Vacuum Sintering Furnace

FSC-6090C-7

FSC-6150C-6

Products Feature

The advanced Japanese technology imported, multi-chambers free combination, multi-zone temperature control, continuous operation, high automation, efficiency and energy saving.

Products Application

Rare Earth Permanent Magnets
Ceramic Materials
Ta ElectricalCondenser
Composite Materials

Technical Parameter

Model	Working Zone (mm)	Loading Capacity(kg)
FSC-6090C	600W × 600H × 900L	500
FSC-6130C	600W × 600H × 1300L	600
FSC-6150C	600W × 600H × 1500L	1000

Max temperature(℃)	1200
Working temperature(℃)	1150
Temperature uniformity (℃)	±3
Ultimate vacuum (Pa)	2×10^{-3}
Leaking Rate (Pa/h)	0.4

ULVAC (Shenyang) Co., Ltd.

Scene 7

Continuous Vacuum Brazing Furnace

FBC-418C-6

FBC-217C-5

FBC-412C-3

FBC-418C-7

FBC-324C-3

Technical Parameter

Treatment	Model	Working Zone	Loading Capacity	Brazing Temperature	Composition
Low-temperature Brazing	320	300 × 2000 × 1600	250	610 ± 3℃	4 chambers: preparation+preheating+heating+Taking out 6 chambers: preparation+first preheating +second preheating+heating+natural cooling+air forced cooling (Note: Different chambers can be combined according to customer's requirement, for more solutions please inquire sales)
	324	300 × 2400 × 1800	380	600 ± 3℃	
	418	400 × 1800 × 1200	200	600 ± 3℃	
	424	400 × 2400 × 1900	400	600 ± 4℃	
High-temperature Brazing	317	310 × 1700 × 1300	450	1120 ± 7℃	5 chambers: preparations+preheating+heating+natural cooling+air forced cooling (Note: Different chambers can be combined according to customer's requirement, for more solutions please inquire sales)
	418	400 × 1800 × 1300	500	1050 ± 5℃	

ULVAC (Shenyang) Co., Ltd.

Scene 8

Vacuum Oil Quenching Furnace

FHH-75C-GLHS

Products Application

The double chambers horizontal vacuum heat treatment furnace which is used for metal heat treatment (quenching and annealing etc)under the condition of in vacuum or inert gas. Mainly used for vacuum oil quenching heat treatment of the bearing steel, middle-low alloy steel, spring steel etc. and gas carburizing, that can do carburizing heat treatment on low carbon alloy structure steel, make it toughness inner and hardness outer, improve the properties of impact and wear resisting.

Products Feature

1. Purify vacuum structure: the heating chamber was constantly keeping vacuum condition, then no air or water or noxious gas polluting the inside furnace. The heater and thermal insulation won't be oxidized, less losses and long service life.
2. Low running cost: the heating chamber won't be cooled because of the cooling was done independently so the high temperature could be held on so as to shorten heating time and save energy. Then the high quality heat treatment could be highly repeated.
3. The carrier gas method (P-Q balance) which is the specific patent of ULVAC which can effectively restrain the metal (such as Cr) evaporation, to prevent the metal surface rough and element evaporating.
4. Excellent temperature uniformity which can be available to control within ±5℃
5. Automatic operation: load the workpiece into the tray which outside the furnace→oil and gas cooling chamber→heating chamber→return to oil and gas cooling chamber→return to the roll stacker outside the furnace, full automation was realized during the whole process.
6. Fast and uniformity cooling, high property: the product can be cooled in the stiring oil, fast cooling, high intensity quenching, and excellent property.
7. Steady and reliable material transmission process: material automatically sent into cooling chamber→heating chamber→cooling chamber oil tank→out of furnace, no shaking or blocking, especially the reliable long time running.
8. Advanced control method, easy operation, safety and reliable running, (power supply, control, record, monitor, complete alarm protection).
9. Gas cooling pressure can be available to 2bar.

Technical Parameter

Item	Model	FHH-45C	FHH-60C	FHH-75C	FHH-90C	FHH-120C	Remarks
Working Zone	Width(mm)	450	600	750	900	1200	
	Height(mm)	300	400	650	600	1000	
	Length(mm)	675	900	1125	1350	1800	
Max Loading Capacity(KG)		120	210	500	800	1000	
Max Temperature		1350℃					
Working Temperature		550~1150℃					
Temperature Uniformity		Δ t≤ ±5℃					Empty furnace,maintaining at 1150℃ for 1 hour, k-type thermocouple measuring
Gas Cooling	90kPa	30min			60min	120min	Loading work pieces,Temperature dropping from 1150℃ to 150℃
Vacuum	Ultimate Pressure	Standard:1 Pa (Other Option 10^{-1} Pa)					
	Working Pressure	13Pa~133Pa					Empty furnace,after fully degassed, measuring at room temperature
	Exhausting Time	15min			20min		Empty furnace,after fully degassed,measuring at room temperature,preessure changing from atmosphere to below 10pa
	Leaking rate (Pa·m³/s)	3×10^{-4}	3×10^{-4}	3×10^{-4}	4×10^{-4}	6×10^{-4}	Empty furnace,after fully degassed, measuring at room temperature.
Heating Power (kVA)		80	140	210	285	470	
Cooling Water (m³/h)		5.3	8	16.2	17	59	When the pressure is 90kPa-abs
Floor Area	3 Chambers	3.0×8×3.8	4.6×9.5×4.0	5.5×12.8×5.8	6.0×13×5.1	8.2×16×7.4	W x L x H (mm) Maintenance Space

ULVAC (Shenyang) Co., Ltd.

Scene 9

Multi-chambers Vacuum Heat Treatment Furnace - FH Series

Products Application

Heat Treatment

Brazing

Technical Parameter

Items			Type 30	45	60	90	120	Remarks
Character istics	Size	Working Zone (mm) D	300	450	600	900	1200	Including Tray
		Working Zone (mm) H	300	450	600	900	1200	
		Max Loading Capacity (kg)	80	180	320	800	1600	
	Temperature	Max Temperature	1350℃					
		Working Temperature	800 ~ 1150℃					
		Temperature Uniformity	1150℃ Within ±5℃					Five Points Measuring Temperature (Empty furnace)
			(Correspond to MIL and Other Standards)					
	Cooling	Gas Cooling 93kPa	Within 30 minutes					Load workpiece when Temp. in 1150℃-150℃
		Gas Cooling 190kPa	Within 20 minutes					
	Vacuum	Ultimate Pressure	10^{-1}Pa (High Vacuum 10^{-2}Pa is optional)					Value after degassing(Empty furnace)
		Working Pressure	133 ~ 13Pa					
		Exhausting Time	Within 10 minutes				Within 15 minutes	From atmosphere To 6.7Pa(Empty furnace)
		Leaking rate(Pa·m³/s)	3×10^{-4}		3×10^{-4}	4×10^{-4}	5×10^{-4}	Cause by Pressure Rising
	Power (kVA)	GH	43	65	101	209	278	AC380V 50Hz 3Φ Everage Electric Power
Operating Requirements	Cooling Water (M³/hr)	GH	2	3	5	9	16	Pressure:250kPa Water Temperature:Below 30℃ ※With Oil Diffusion Pump: Below 25℃
	Compressed Air (Nm³/min)		Some	Some	Some	Some	Some	700kPa
	Loading Gas (L/min)		1	1.5	2.2	7.2	10	N_2 (N.T.P.)
	Cooling Gas (Nm³/min)		1.2	1.8	3	6	10	N_2 (N.T.P.)
	Area (m)	2 Chambers GH	3.5×4.5	3.5×5.1	4×6.3	6×9	7×10	W×L
			2.5×1.8	3.5×2.3	4×2.6	5×3.5	6×4	H×D

Enterprise Introduction

■ Comprehensive Technical Supports

The experiment, research and development of the special model furnace is able to be provided according to what customers request.

ULVAC

ULVAC (Shenyang) Co., Ltd. (hereinafter as'USY'), is a foreign joint venture established in Shenyang by ULVAC Inc JP and ULVAC (China) Holding Co., Ltd. Since the establishment in 2005, USY has been focusing in designing and producing of industrial vacuum furnaces.USY is able to provide a wide range of vacuum furnace types including vacuum induction melting furnace, strip caster, batch type, multi-chamber, in-line type and continuous vacuum heat treating, vacuum brazing,vacuum annealing, vacuum tempering and vacuum sintering furnaces,etc.

After registered ISO9001:2008 of SGS in 2015, USY have strictly complied with relevant performance standard of ISO quality control system. With the imported advanced technology from Japan,ULVAC is able to provide comprehensive solutions for our customers.

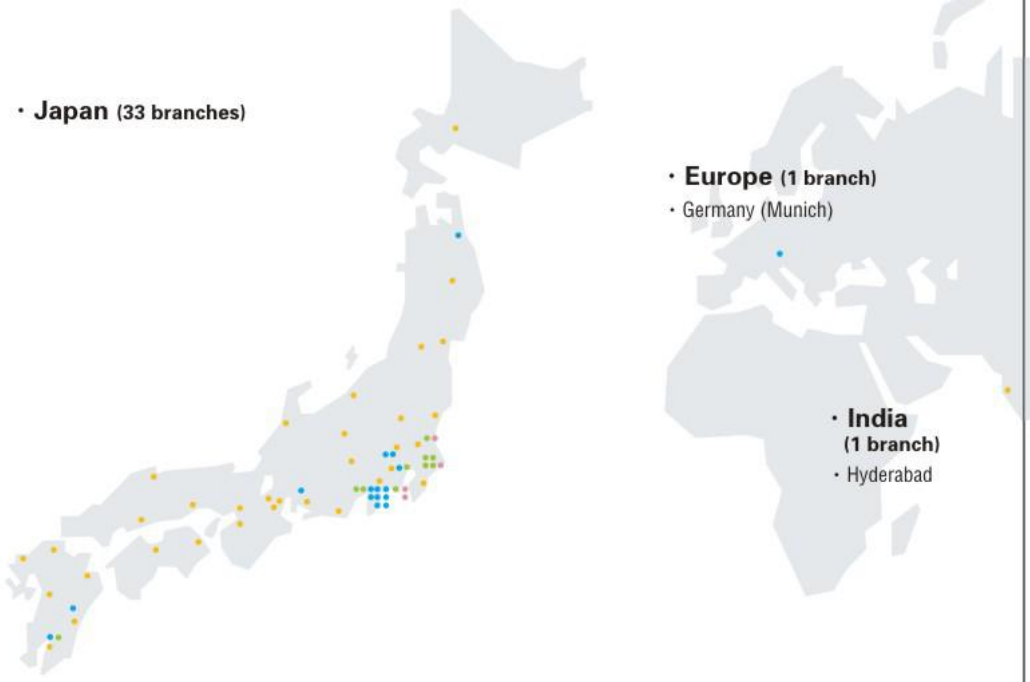
Currently, USY owns a workforce of over 170 employees, among which 30 personnel are engaged in R&D of furnace design and process.As a leading industrial vacuum furnace manufacturer company in China,USY has provided more than 2000 various furnaces to not only domestic Chinese customers but also the users from Japan,Korea, US,Britain, France, Germany, Slovenia, Turkey and South East Asia countries. With after-service departments established in Shenyang and Ningbo, Based on the principle of Customer First, USY is continuing providing more timely, first class and professional service to all the customers.

USY philosophy: strengthen intra-group assistance and cooperation among ULVAC, devote in innovation of industrial vacuum technology and utilization of vacuum peripheral process, make a contribution for industrial and technological development.

Global After-Service Networks

Starting from equipment purchasing

Our mission is the quality that customer requested
Keeping in close contact with customers
Hearing from customers timely



- **Japan** (33 branches)
- **Europe** (1 branch)
  - Germany (Munich)
- **India** (1 branch)
  - Hyderabad
- **Korea** (3 branches)
  - Pyeongtaek
  - Gumi
  - Paju
- **China** (14 branches)
  2 branches from ULVAC(Shenyang)
  - Shenyang
  - Ningbo
- **Taiwan** (4 branches)
  - Xinzhu
  - Taizhong
  - Tainan
  - Taoyuan
- **America** (6 branches)
  - Massachusetts
  - Virginia
  - Texas
  - California
  - Idaho
  - Oregon
- **Southeast Asia** (6 branches)
  - Singapore
  - Malaysia
  - Vietnam
  - The Philippines
  - Indonesia
  - Thailand

We have been providing targeted service during usage of equipement

To the equipment offline

We have kept following and supporting our equipments