

# Compact batch-type vacuum carburizing furnace

## EN-CARBO NVC Series

### Original oil tank designed to minimize distortion.

Workpiece is quenched in the center of an oil tank which is designed with a circular cross section. This enables quenching in all directions with flow uniformity, and fast processing that suppresses cooling irregularities.

### Small-lot, multiple item production and shortened lead times

- Smooth process switching and small-lot processing optimized for small-lot, multiple item production applications for prototypes, etc.
- In addition to normal carburizing and super carburizing for case hardened steel, also ideal for VNC (Vacuum Nitro-Carburizing) treatment and sub ECD 0.2 mm carburizing for SPCC etc.
- Hinged heating chamber designed for easy maintenance.
- No exhaust gas burning allows nighttime operation and increases productivity.
- Small exterior dimensions make installation easy and lower cost of operations, by cutting logistics costs, for example.

Precision heat treatment

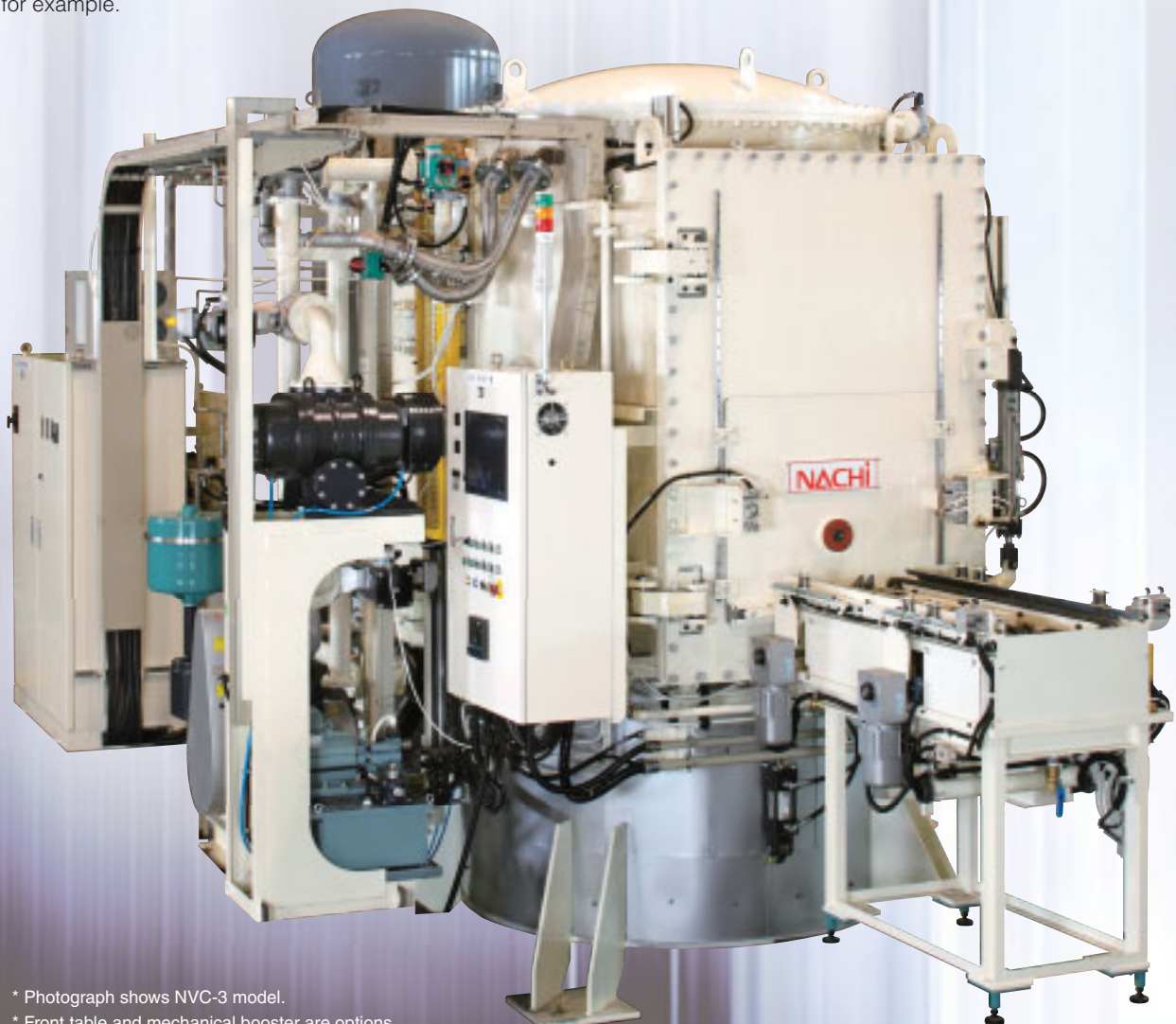
Micro-size parts

Multi-product support

Gear and other prototyping

Materials development

Precision molding



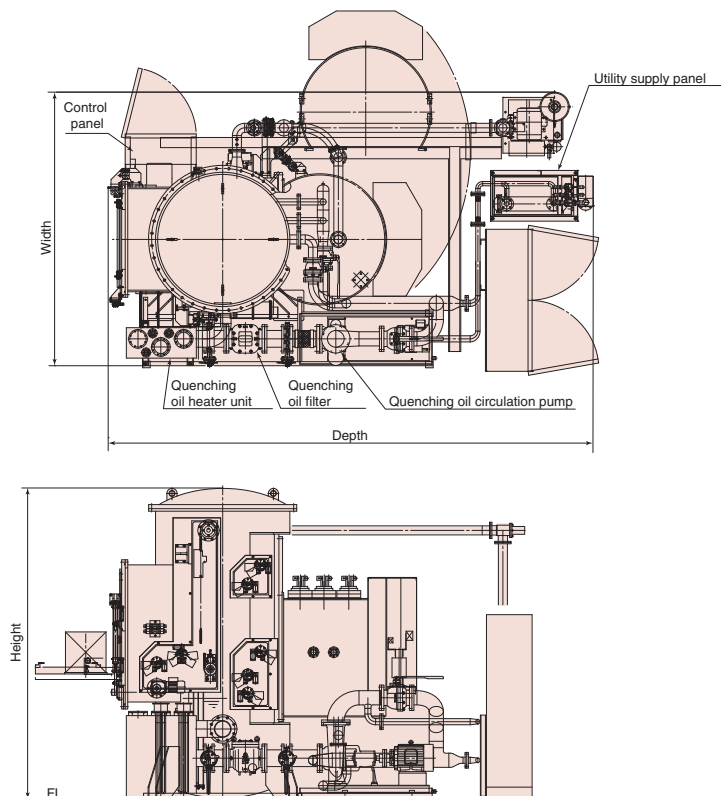
\* Photograph shows NVC-3 model.

\* Front table and mechanical booster are options.

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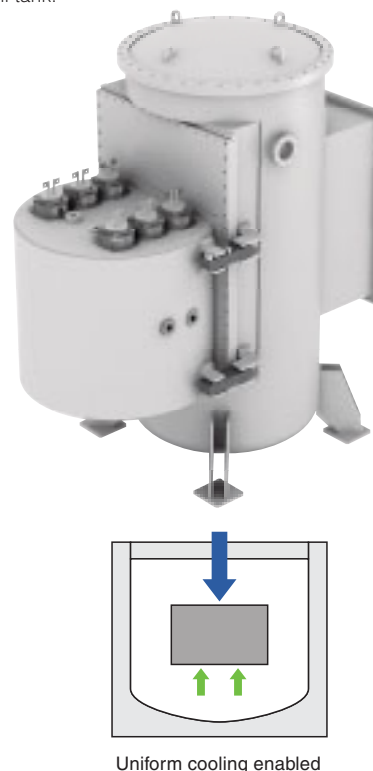
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### External View



### Structural specifications

Uniform cooling is enabled by lowering material to the center of the oil tank.



### Specifications

	Standard specifications Main specifications	Model NVC-1	Model NVC-3	Remarks
Basic specifications	Effective dimensions	400 × 400 × 400 mm	460 × 620 × 550 mm	Width × Length × Height
	Gross capacity	100 kg	300 kg	Gross charge
	Cooling method	Both oil quenching and gas cooling		Ambient coolant pressure: 290 kPa
	Operating temperature	800°C - 1050°C		Maximum operating temperature: 1050°C
	Exterior dimensions	2.7 × 3.5 × 2.9 m	3.5 × 5.1 × 2.9 m	Width × Length × Height
Heating chamber	Heater power input	30 kW	45 kW	<b>OPTIONS</b> ① Convective heating ② VNC process (vacuum nitride carburizing process)
	Vacuum level	1.0 × 10 <sup>2</sup> Pa (ABS)		
	Ultimate vacuum level	1.0 × 10 <sup>5</sup> Pa (ABS)		
	Temperature uniformity	±5°C		
Cooling chamber	Quenching oil temperature	80 - 150°C		<b>OPTIONS</b> ① 290 k Pa nitrogen pressurized cooling (removable option) Cooling fan and cooler (removable option) Pressure-resistant door (removable option) ② High temperature, low temperature oil quenching Heating/cooling system setting for 60 to 80°C or 150 to 200°C oil quenching ③ Quenching oil fast heating
	Quenching oil capacity	1100 L	3500 L	
	Vacuum level	1.0 × 10 <sup>2</sup> Pa (ABS)		
	Maximum cooling pressure	2.0 × 10 <sup>5</sup> Pa (ABS)		
	Cooling fan	7.5 kW	11 kW	

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Specifications and configurations may change due to product developments without prior notice.

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