

# NSK Bearing Heaters

Compact induction heaters with automatic temperature control and demagnetizing



# Safe and Efficient Shrink Fitting of Bearings

Fast, Safe Heating without Flames

Controlled, Uniform Heating Prevents Bearing Damage

Clean Heating without Oil



# Features of NSK Bearing Heaters

## ● Fast, Uniform Heating

Induction heating reduces bearing mounting time and cost.

## ● No Oil Required

As no oil is necessary, there can be no spills or other mess and bearings remain clean.

## ● Safe Operation

Since there are no flames, there is no fire hazard, and an internal circuit breaker guards against an electrical short.

## ● Compact and Light

Most NSK Bearing Heaters are light enough to be carried easily and used anywhere.

## ● Automatic Temperature Control

A thermostatic control can be set at any temperature up to 200°C. When the desired level is reached, a buzzer sounds and constant temperature is maintained.

## ● Automatic Demagnetizing

When the heating is finished, the bearing is quickly and automatically demagnetized.

## ● Bearing Rest

A convenient rest supports the bearing and allows it to be easily positioned.

## ● Versatility

Besides bearings, other metallic rings, such as inner ring spacers, can also be heated for shrink fitting or for other purposes.

# Composition of Bearing Heater Model Numbers

<Examples> CHE01xx

CHE 01 10 A - E

Maximum Current { A: 10A  
B: 15A

CHE02xx~CHE20xx

CHE 02 10 - 50 E

English-Language Model

Frequency { 50: 50 Hz  
60: 60 Hz

NSK Bearing Heater

Capacity (KVA)

Voltage { 10: 100 V  
12: 120 V  
20: 200 V  
22: 220 V

# Standard Specifications

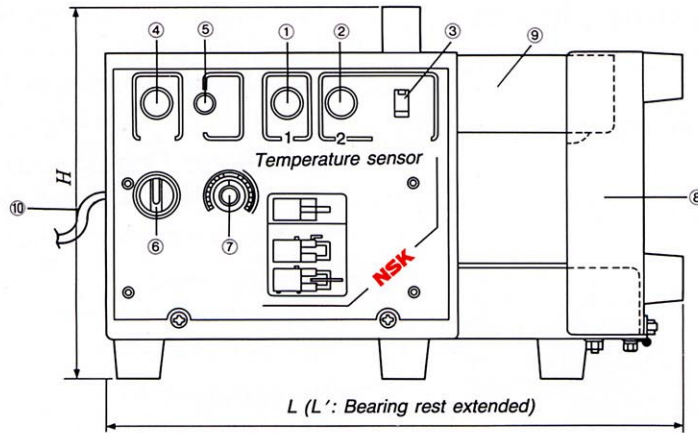
| Model No.                     | CHE0110A   | CHE0110B   | CHE0210   | CHE0220  | CHE0420  | CHE0720 <sup>(2)</sup> | CHE1220 <sup>(2)</sup> | CHE2020 <sup>(2)</sup> |
|-------------------------------|--|--|---|--|--|------------------------|------------------------|------------------------|
| Power source voltage (V)      | 100  | 100  | 100   | 200  | 200  | 200                    | 200                    | 200                    |
| Capacity (KVA)                | 1  | 1.5  | 2   | 2  | 4  | 7                      | 12                     | 20                     |
| No. of phases                 | Single   |  | Single  |  |  | Single                 |                        |                        |
| Frequency (Hz)                | 50 and 60  |  | 50 or 60  |  |  | 50 or 60               |                        |                        |
| Dimensions (mm)               | Height <i>H</i>  | 236  |   | 236  |  | 504                    | 1115                   | 1115                   |
|                               | Width <i>W</i>   | 158  |   | 158  |  | 500                    | 600                    | 600                    |
|                               | Length <i>L(L')</i> <sup>(1)</sup>   | 320 (480)  | 353 (513)   | 372 (524)  |  | 472 (624)              | 710                    | 1280                   |
| Weight (kg)                   | 11.7   | 13.2   | 16.0  | 16.5   | 18.5   | 75                     | 242                    | 278                    |
| Applicable bearing sizes (mm) | A  | max 70   | max 100   | max 110  |  | max 175                | max 310                | max 355                |
|                               | B  | max 70   | max 90  | max 80   |  | max 200                | max 300                | max 400                |
|                               | <i>d</i>   | More than $\phi 20$  |   | More than $\phi 20$  |  | More than $\phi 35$    | More than $\phi 50$    | More than $\phi 50$    |
| Standard accessories          | <ul style="list-style-type: none"> <li>•I-shaped core: 15×15 mm: For bores <math>\phi 20\sim\phi 35</math></li> <li>•Temperature sensor</li> </ul> | <ul style="list-style-type: none"> <li>•Three I-shaped cores: 15×15 mm: For bores <math>\phi 20\sim\phi 35</math></li> <li>25×25 mm: For bores <math>\phi 35\sim\phi 50</math></li> <li>35×35 mm: For bores <math>\phi 50\sim\phi 80</math></li> <li>35×35 mm: For bores <math>\phi 50\sim\phi 80</math></li> <li>•Temperature sensor</li> <li>•Plate for small bearings</li> <li>•Box for I-shaped cores</li> </ul> | <ul style="list-style-type: none"> <li>•Three I-shaped cores: 15×15 mm: For bores <math>\phi 20\sim\phi 35</math></li> <li>25×25 mm: For bores <math>\phi 35\sim\phi 50</math></li> <li>35×35 mm: For bores <math>\phi 50\sim\phi 80</math></li> <li>•Temperature sensor</li> <li>•Plate for small bearings</li> <li>•Box for I-shaped cores</li> </ul> | <ul style="list-style-type: none"> <li>•Three I-shaped cores: 25×25 mm: For bores <math>\phi 35\sim\phi 50</math></li> <li>35×35 mm: For bores <math>\phi 50\sim\phi 80</math></li> <li>55×55 mm: For bores <math>\phi 80\sim\phi 120</math></li> <li>•Temperature sensor</li> <li>•Base with wheels</li> <li>•Temperature sensor</li> <li>•Base with wheels</li> <li>•Box for I-shaped cores</li> </ul> | <ul style="list-style-type: none"> <li>•Two I-shaped cores: 35×35 mm: For bores <math>\phi 35\sim\phi 50</math></li> <li>55×55 mm: For bores <math>\phi 80\sim\phi 120</math></li> <li>•Temperature sensor</li> <li>•Base with wheels</li> </ul> |                        |                        |                        |

Notes (1) L': Bearing rest extended  
(2) Not available from stock. Contact NSK for details.

Remarks 1. Be sure to give the voltage and frequency when placing an order.  
2. Consult NSK for voltages other than those listed.  
3. CHE01xx Model can use both 50 and 60Hz.  
4. Bearings should not be heated higher than 120°C.  
5. Handle the heated product with care.

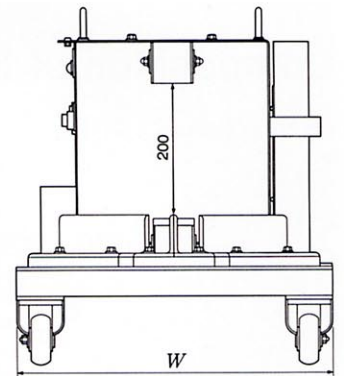
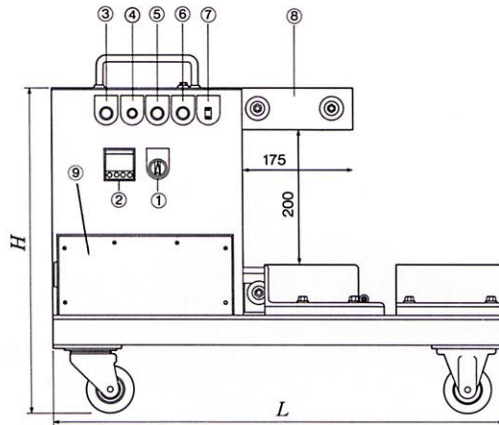
**Models CHE0110A, CHE0110B, CHE0210, CHE0220 and CHE0420**

- ① Power indicator lamp
- ② Heating indicator lamp
- ③ Socket for temperature sensor
- ④ Demagnetizing indicator lamp
- ⑤ Circuit breaker
- ⑥ Heating/demagnetizing switch
- ⑦ Temperature setting dial
- ⑧ Bearing rest
- ⑨ Upper core
- ⑩ Power cable



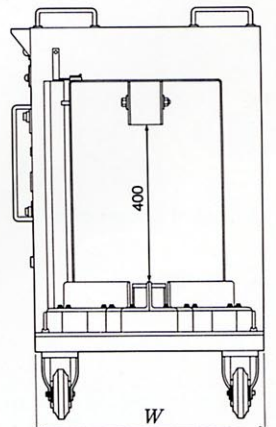
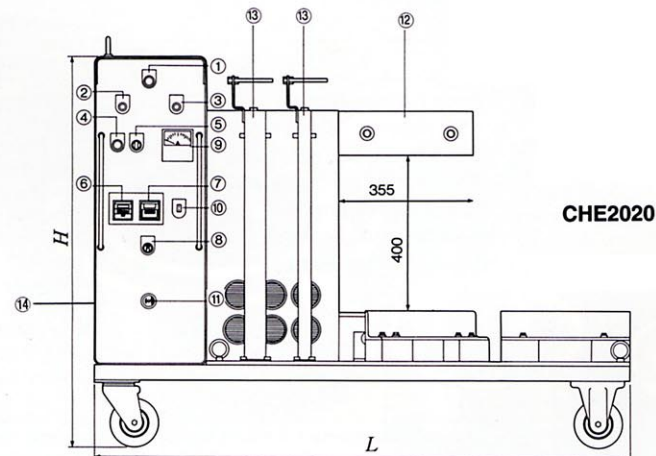
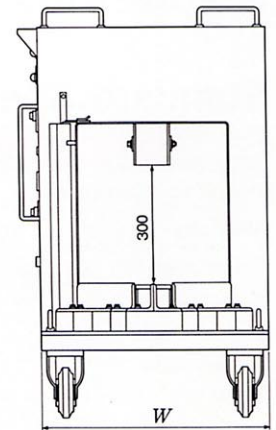
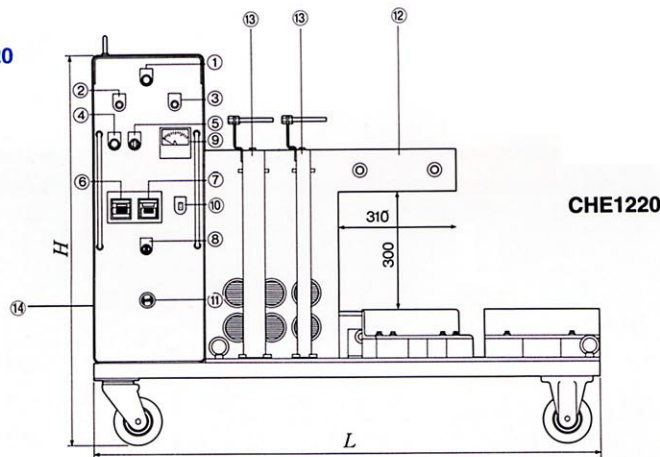
**Model CHE720**

- ① Heating/demagnetizing switch
- ② Electronic temperature controller
- ③ Demagnetizing indicator lamp
- ④ Circuit breaker
- ⑤ Power indicator lamp
- ⑥ Heating indicator lamp
- ⑦ Socket for temperature sensor
- ⑧ Upper core
- ⑨ Power input



**Models CHE1220 and CHE2020**

- ① Power indicator lamp
- ② Heating mode indicator lamp
- ③ Heating indicator lamp
- ④ Demagnetizing indicator lamp
- ⑤ Heating/demagnetizing switch
- ⑥ Digital timer
- ⑦ Electronic temperature controller
- ⑧ (Temperature ↔ Timer) Switch
- ⑨ Ampere meter
- ⑩ Socket for temperature sensor
- ⑪ Buzzer
- ⑫ Upper core
- ⑬ Storage for I-type cores
- ⑭ Power input





Models CHE0110A, CHE0110B, CHE0210, CHE0220 and CHE0420



Model CHE720



Models CHE1220 and CHE2020

# Heating Temperature and Inner Ring Expansion

The inner rings of bearings expand with temperature as shown in the figure below.

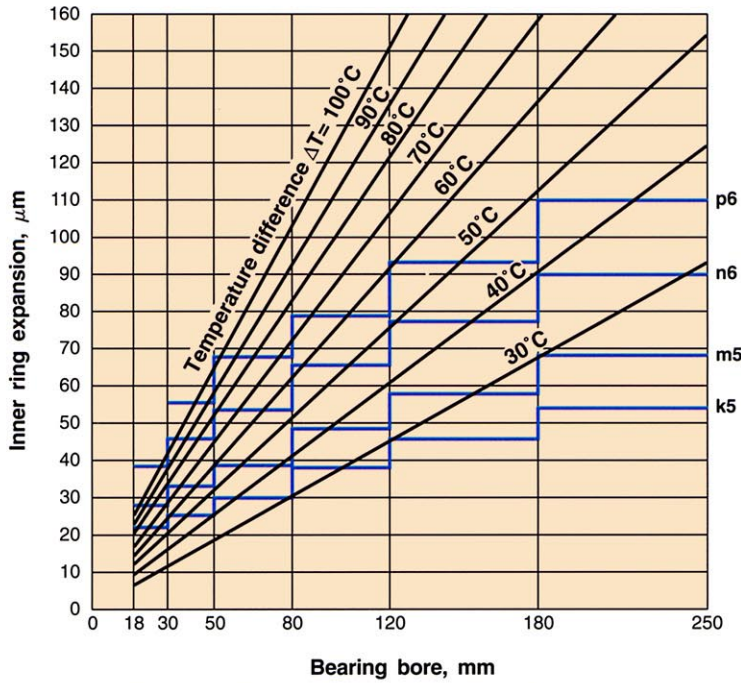


Fig. 1 Heating temperature and inner ring expansion

## Examples of Bearing Heating Times

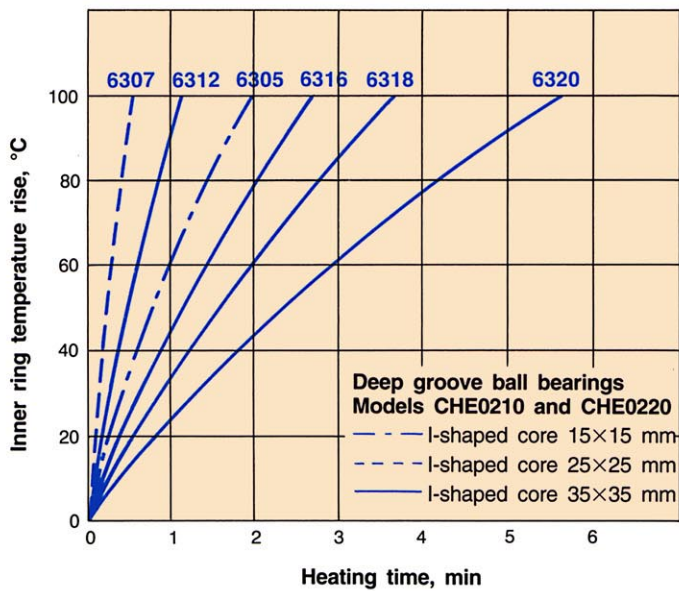


Fig. 2 Heating time and temperature rise of ball bearings

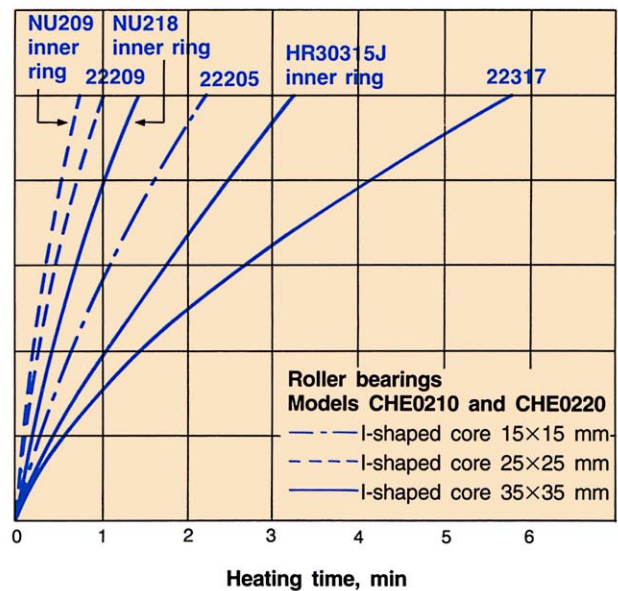
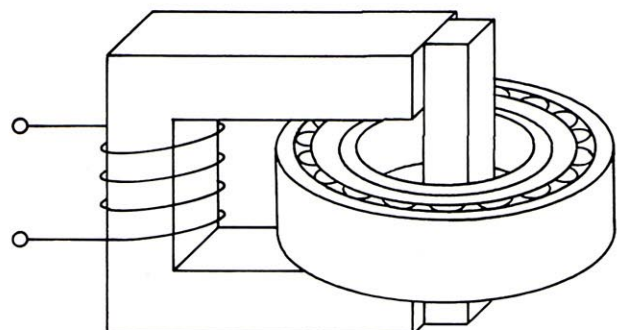


Fig. 3 Heating time and temperature rise of roller bearings

## Principle of NSK Bearing Heaters

NSK Bearing Heaters produce strong alternating magnetic fields that induce eddy currents in metals. These currents rapidly and efficiently heat bearings, while their low voltage means no risk of shocks or sparks.



## Accessories

For models CHE0210, CHE0220 and CHE0420:

- Small I-shaped core (CI-1708)  
8×8 mm I-shaped core for bores  $\phi 12 \sim \phi 20$
- U-shaped core (CU-1755)  
For heating larger bearings and other items

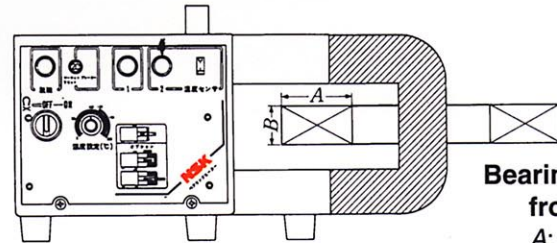


For models CHE0210 and CHE0220:

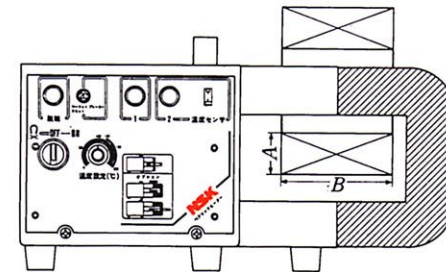
- Carrying case (CB-450)



Increased size range with U-shaped core



**Bearing bore size:**  
from  $\phi 100$   
A: max 135 mm  
B: max 80 mm



**Bearing bore size:**  
from  $\phi 80$   
A: max 65 mm  
B: max 155 mm

## Comparison of Oil Bath and NSK Bearing Heater

| Oil Bath   | NSK Bearing Heater   |
|--|--|
| Fire hazard. Difficult to control temperature.                     | Safe operation without flames.   |
| A large quantity of oil is required, which wastes time and energy. | Only the bearing is heated so the operation is fast and there is no wasted energy. |
| Even when new oil is used, cleaning after immersion is required.   | Bearings do not require cleaning after heating.                                    |
| Bearings containing grease cannot be immersed in oil.              | All bearings and other metallic rings can be easily and safely heated.             |
| Inspection, control and disposal of oil are required.              | No maintenance is required and no waste is generated.                              |