



INDUCTION HEATER

BEARING 100

User manual

Summary

This manual contains important information that the user must read carefully before using the equipment.



www.teknel.com

Teknel S.R.L.
Via Montello 48, 33040 Visco (UD)
0432/837914 – mail@teknel.com

Congratulations for your purchase

Dear customer, thank you for choosing Teknel. This **Bearing 100** is an instrument of great versatility, that for many years will be helpful for your work.

Index:

Pag 2.	Index
Pag 3.	Warranty Identification of the machine Technical specifications Reference regulations
Pag 4.	Use of this guide General safety notes Intended conditions of use
Pag 5.	Construction features Mandatory and danger signs List of protections Tips for a proper use of the machine
Pag 6.	Residual risk Noise and vibrations Demolition and disposal Unpacking and installation Connection Use of the machine
Pag 7.	Maintenance – general rules Preventive maintenance Routine Extraordinary maintenance
Pag 8.	Main parts of the machine Components and parts
Pag 9.	RoHs declaration of conformity
Pag 10.	CE declaration of conformity

Warranty

At the delivery, the customer must verify that the machine is complete of all its parts. Defects and anomalies must be reported within the legal deadline. Any attempt of tampering on any part of the machine and/or plate of the machine itself, the CE mark (if posted from the manufacturer), every compliance statement and/or manufacturer's statement, will void the warranty.

The manufacturer is not responsible in the following cases:

- improper installation;
- improper use of the machine by not authorized personnel;
- improper use of the relevant safety standards;
- lack of maintenance;
- use of improper or non-original parts.

Identification of the machine

An identification plate is affixed on the machine, where, in addition of the CE mark, it is indicated:

- name and address of the manufacturer;
- serial number;
- year of production;
- model;
- type of machine;
- supply voltage.

These data must be quoted everytime the operation of technicians or the request of spare parts is required.

Technical specifications

Type of induction heater: Bearing 100

Power: 0,5kW

Supply voltage: 230V single phase

Supply frequency: 50Hz

Work frequency: 20-40kHz automatic selection, controlled by microprocessor

Insulation: class F, number of poles 2+T

Air cooling

Supply cable length: 1,5m

Inductor cable length: on the machine

Weight: 5Kg, height 110mm, width 320mm, depth 250mm

Reference to regulations

Directive CE 2004/40 – Exposition to electromagnetic fields

Directive low voltage CE 2006/95

Directive machinery 2006/42/EC

Directive EMC 2004/108/EC

Directive 2002/95/EC

Directive EC 2002/96

Use of this guide

It is really important that this manual, designed to give to the user a general knowledge of the machine, instructions for use and maintenance considered necessary for the correct function of the machine itself, is kept with the machine for every future reference. As specified by law, this manual is an integral part of the machine and must accompany it until its disposal. The warnings given must be read carefully before installation and use for safety reasons. It is forbidden for any reason to modify this manual without the written consent of the manufacturer or the distributor.

General safety notes

- This machine is perfectly done. Its durability and reliability will be much longer if used correctly and if regular maintenance is done.
- Always read instructions written in red in this manual, because they provide important information on safety.

CAUTION!

- ❖ This machine must be used only from adult and trained personnel, in the full compliance with local regulations and the instructions contained in the manual
- ❖ Follow strictly the mandatory and warning signs found on the machine
- ❖ Before every electrical maintenance, unplug the machine from the power supply to avoid accidental ignitions
- ❖ In case of pipe or cable damaging or breaking, act quickly to replace them
- ❖ If the equipment has a liquid leakage, the loss must be eliminated
- ❖ Do not let the equipment exposed to weathering
- ❖ Do not let the equipment unattended in the hands of children
- ❖ When you'll decide to stop using the equipment, you'll have to make it inoperative, in full compliance of the practices required by law

Intended conditions of use

This machine must be used only for the purpose it's been designed, that is:

generate heat within ferrous materials for bearing heating.

Every other use not expressly indicated in this manual is strictly forbidden, since improper and therefore dangerous.

The machine is semi-automatic and requires the presence of the operator.

CAUTION!

The operator has personal responsibility to respect all the rules regarding safety, not only for himself, but also for others that may be exposed to the risks of the machine. Before working with the machine, then, it is necessary to read carefully this manual, which is a guide to work correctly and safely. Keep this manual for any future reference.

Construction features

The machine has been designed and built in full compliance with the essential health and safety requirements specified in the Machinery Directive 89/392 EEC and following edits. Specially, since the operator is in direct contact with the machine, it is requested to:

- Remove sharp corners and edges;
- Avoid unstable conditions that could lead to a risk of rollover, fall or inappropriate and dangerous movements;
- Ensure that the operator avoids the direct contact with the parts in voltage, that during the work of the machine may cause electrical shock or injuries;
- Every other thing needed to make the use of the machine safe.

Mandatory and danger signs

On the edge of the machine there are mandatory and danger signs that the operator must follow for his personal safety.

List of protections

If used properly, the machine is safe. Anyway, it's recommended to use extreme caution during its use, since the heated materials may burn to contact even after a long time after the passage of the inductor; the inductor itself, even if continuously cooled, may become hot if continuously in touch with hot parts and virtually become a burn danger.

The machine has several protections against thermoelectric overload: the first one is for inductor's overload. To reboot it after this security lock, simply release the command button and pus hit again. For all the other protections, turn off the machine with the main switch. Lastly, there's a series of fuses on the input supply line, in case that all the other systems will fail. Do not replace the fuses before the fault has been found and repaired.

Tips for a proper use of the machine

The control of the point to heat on the piece you're working is important. Overheating the piece can lead to a deterioration of the strength of it and to the inductor's life shortening. A simple way to control that is check the table on the right and ensure that the piece to heat doesn't exceed the temperature of 900°C.

The inductor is realized in copper and together with the flux concentrator is the most fragile part of the induction heater. The maximum care must be used during the utilization: it must never be dropped or used to leverage, hammer the piece to work, or for other improper purposes not specified in the manual.

If handled with care, the inductor lasts many years. As time goes by, however, being a consumable part, it will wear, since the high thermal and energetical stress due to heat and high power that this part has to withstand.

Teknel warranty doesn't cover breaks caused by improper uses of the machine.

Temperature (°C)	Color
1200	White
1100	Light yellow
1050	Yellow
980	Light orange
930	Orange
870	Light red
810	Light cherry
760	Cherry
700	Dark cherry
650	Blood red
600	Brown red

Residual risk

CAUTION!

- ❖ This machine has been designed to ensure to the operator the maximum safety. Anyway, there's the possibility that the operator, absently, burns himself
- ❖ The machine must not be used near sensitive materials or dangerous explosives, compressed gases, flammable liquids, delicate electrical equipment
- ❖ It is forbidden to use this machine wearing metal objects which are heating near the inductor
- ❖ It is forbidden to use this machine for people having pace-makers or other biomechanical equipment

Noises and vibrations

This machine produces a sound pressure level for a continuous use lower than 60dB(A). The machine doesn't produce significant vibrations that can cause danger.

Demolition and disposal

Some materials that make up the machine can be recycled: the demolition must be made then in compliance with the local regulations.

Unpacking and installation

The machine is supplied ready-to-use. However, before operating, it's necessary to remove all the packaging material, recycle it, and place the machine in a suitable place (ground floor, in an airy and dry place).

CAUTION!

The installation of the machine must be done in order to allow an easy access to all its parts. The space around the machine must be sufficient to allow the operator to carry out every use and maintenance operations without risks.

Connection

The supply voltage and frequency must match the ones on the data plate. The machine is supplied complete of all the electrical connections: it is sufficient to plug the machine in the socket in the correct way.

CAUTION!

Plug the machine only to a socket equipped with lifesaving system.

Use of the machine

Turn on the machine with the main switch placed on the right side of the front panel and place the bearing you have to heat on the ceramic plate situated on the upper side of the machine, putting it on the protruding flux concentrator. From the moment of machine's power on, the thermometer will need 60 seconds of preloading before start heating, showing the **"work"** indicator light blinking. Place the temperature sensor on the bearing: on the thermometer display, the actual temperature will be shown. Push the **"set"** button and use the arrow keys to set the desired heating temperature. ADVICE: considering the thermal inertia, set a lower temperature than the desired one, approximately 10°C less. Wait a few seconds or push again the **"set"** button to come back to the actual temperature. Push the **"set"** button for a few seconds to select the operating

mode and select “HC”. Push the “set” button again, select “H” mode and wait a few seconds. When the display will come back to the actual temperature screen and the “work” indicator light will be steady, push the “start” red button to start heating. When the heating cycle is done, turn off the machine with the main switch (see picture at page 9 for instructions on the control panel).

Maintenance – general rules

- It is essential that the works on the machine are made by authorized and qualified personnel, that is aware of the way to operate safely
- Never perform any cleaning, lubrication or maintenance with the machine turned on
- Before every work of maintenance, turn the main switch to the “0” to shut down the machine and disconnect it from the power supply to avoid electric shocks or other dangers coming from carelessness
- Do not wear rings, watches, jewels, loose clothing or pendant like ties, scarves, unbuttoned jackets or open zippers that may be caught during work
- It is necessary to wear clothes suitable for the prevention of accidents, for example: non-slip shoes, ear protections, protective glasses, proper gloves, and other
- Never use gasoline or other flammable solvents to clean the machine; use water and, if necessary, non-toxic solvents
- After the operations of maintenance, before turning on the machine, reassemble any guards eventually removed

Preventive maintenance

It is necessary to perform regular and meticulous inspections to locate preventively any defect in order to remove it fastly before they can cause damage to the equipment and people.

CAUTION!

- ❖ Everytime you need to use the machine, check in advance the efficiency of the safety devices, the connection status or the presence of other faults, making some test on some iron scrap before working on important parts
- ❖ Daily check the wearing and readability of the warning signs

Routine

CAUTION!

The operations of the machine can be guaranteed in safety only if the repairs on it are done using original or approved parts from the manufacturer; the instructions of maintenance must be followed strictly and done correctly.

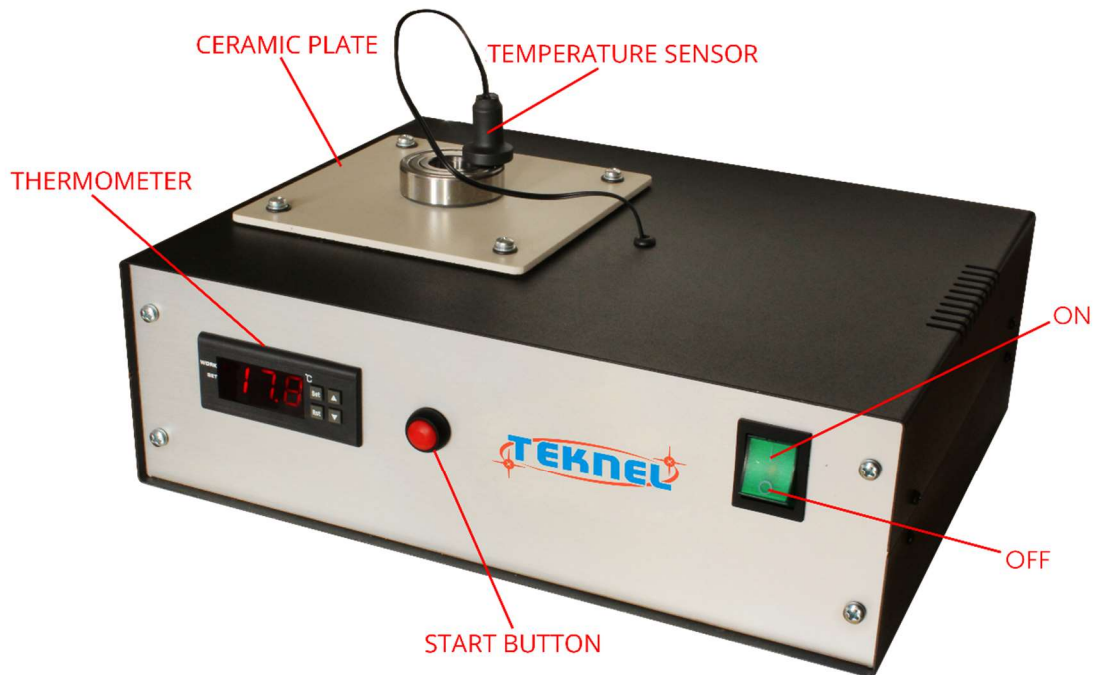
After every use of the machine a cleaning should be done, with the power disconnected, to remove eventually dirt or dust that may decrease the efficiency of the cooling system, modifying the functionality and the duration of the machine. Before every use, check the operations of control systems, safety devices and the integrity of the electric connections.

Check periodically the inductor to make sure that there aren’t water leakages, and the ventilation openings to make sure that they are free from obstructions.

Extraordinary maintenance

If some breaks that require the disassembly of the machine will occur, contact the manufacturer or the distributor.

Main parts of the machine



Components and parts

This section contains a list of the components of the machine. Its contents should be used for the technical identification of spare parts, providing to describe and recognize parts. For a fast spare parts delivery, quote in the following order:

- 1) Position number
- 2) Code number (design or commercial)
- 3) Name of the piece
- 4) Quantity
- 5) ID machine code
- 6) Year of construction



RoHs certificate of compliance

Directive 2002/95/EC of the European Parliament and the Council of the 27th January 2003 on the restriction of the use of certain substances in electric and electronic components

Teknel S.R.L. declares that:

from the 1st of July 2006, every product placed on the market by Teknel S.R.L. is RoHs compliant, and doesn't contain concentrations that exceeds the limits for the following substances:

- lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr(VI))
- Diphenyl polibrominated (PBB)
- Polibrominated diphenyl ethers (PBDEs)

Teknel S.R.L. informs that the RoHs directive does not apply on lead- acid and other batteries, since these are covered from a specific directive, the 91/157/EEC, updated then by the directive 93/86/EEC and 89/101/CE, as expressed in the premises of the same RoHs directive.

Cervignano, 10th June 2007

Nadia Dissabo

TEKNEI SRL
Sede Legale: Via Matteotti, 7
33052 CERVIGNANO DEL FRIULI (UD)
Sede Oper. va: Via Montello, 48
33040 VISNO (UD)
Nadia Dissabo



CE declaration of conformity

Induction heater **BHT100**

The manufacturer:

Teknel S.R.L.
Registered office:
Via Matteotti 7
33052 Cervignano (UD)
Italia

Hereby declares that the induction heater Bearing 100 (BHT100)

- Serial number:
- Year of construction:

meets the safety and health requirements of the following directives:

- Directive CE 2004/40 – Exposition to electromagnetic fields
- Directive CE of low voltage 2006/95
- Directive Machinery 2006/42/CE
- Directive EMC 2004/108 CE
- Directive 2002/95/CE
- Directive CE 2002/96

The technical file is kept at the registered office for the time prescribed by law. The keeper is Mr. Giorgio Tonelli, technical manager.

Any modification of the technical specifications and the proper use of the machine indicated in the instruction manual, are making this declaration of conformity not valid.

Cervignano del Friuli, 18/09/2014
Amministratore unico
Nadia Dissabo

TEKNEI SRL
Sede Legale: Via Matteotti, 7
33052 CERVIGNANO DEL FRIULI (UD)
Sede Oper. va: Via Montello, 48
33040 VISNO (UD)
Nadia Dissabo