Dear reader,

We are proud to present our catalogue ‘BETEX Induction Heaters’, for mounting and dismounting. Our heaters are designed and produced by Bega International BV in Vaassen, The Netherlands and used for maintenance (MRO) and production (OEM).

- Standard and TURBO heaters (low frequency) are used for heating bearings and other drive components for mounting purposes.

- MF Quick-Heaters (middle frequency) are used for heating many parts for both mounting and dismounting purposes. You can use flexible or fixed inductors.

What you should know: our heaters are exported all over the world, are trouble free, safe and easy to use. Designed for use in industrial environments.

Other catalog(s) for Maintenance products and Hydraulic equipment are available on request.

For more information or who is your nearest dealer, contact: sales@bega.nl.

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Bega Special Tools are manufacturer and distributor of Special Tools for safe, cost effective mounting and dismounting of bearings and transmission parts. The tools are used in production and maintenance departments in MRO and OEM companies. We serve all types of industries, with special solutions in Wind, Rail, Mining and Steel industry. Our aim: improve the quality of maintenance and installation of rotating parts in machines, obtaining a longer lifespan.

BETEX® is our registered Trademark.
BETEX® INDUCTION HEATERS
are designed and produced by Bega International BV in Vaassen,
The Netherlands. Our heaters are used all over the world.

DEPENDABLE PROVEN QUALITY
Sturdy styling and user-friendly design guarantee sustained,
problem-free operation in industrial environments.

SERVICE & WARRANTY
Our expertise and experience ensure top quality, reliability,
professional advice and outstanding service.
• 3 year warranty on electrical unit
• clear user instructions

CERTIFICATION
BETEX induction heaters comply with CE and IEC requirements.
Certified by TUV and CSA for Canada and USA.
Bega is VCA certified. We perform electrical inspections in
accordance with NEN 3140.
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MOUNTING & DISMOUNTING
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All heaters are supplied with:

- Instruction manual
- Heat resistant gloves 150°C
- Magnetic temperature probe (240°C)
- Vaseline for maintenance

Optional:

- Trolley
- Adapter yokes
- Heat resistant gloves 300°C
- Magnetic temperature probe (350°C) (higher on request)

IMPACT FITTING TOOL SET (33 & 39)

Ideal in combination with induction heaters. For safe, precise and quick mounting of bearings, seals, bushings etc. Specially for bearings it is important that during mechanical mounting the bearing is supported on its inner and outer ring in order to avoid unnecessary damage and premature failure.
WHY USE INDUCTION HEATING?
Induction heating is a superior, fast and controlled heating method. It is a safe and environmentally-friendly alternative to traditional heating methods such as ovens, oil baths or blow torches. These methods generate smoke, fumes or oil waste and are hazardous for personal health and safety.

FOR BEARINGS AND OTHER COMPONENTS
BETEX® induction heaters are versatile and can be used for the heating of gear wheels, bushes, couplings, etc. It is common knowledge that a correct mounting method extends bearing life. Even, tension-free heating prevents unnecessary damage and retains original lubrication. Induction heaters are ideal for sealed (2RS-ZZ) and pre-lubricated bearings.

TEMPERATURE OR TIME CONTROLLED HEATING
Digital electronics ensure optimum control during the heating process. These automatically regulate the most efficient use of power and ensure even and rapid heating. No extra steps are necessary. This prevents explosive heating (no discoloration or pitting of material).

DEMAGNETISATION
Fail-safe demagnetization is essential for bearings and transmission parts. The proven quality of BETEX® induction heaters guarantees maximum demagnetization (< 2A/cm). This has a major positive effect on the life span of bearings, gears, etc.

ENERGY EFFICIENT
All BETEX® induction heaters are energy efficient in comparison with classic methods. The advantage of the TURBO series over the Standard series is that larger components can be heated in a relatively short time while consuming the same amount of energy.

DEPENDABLE QUALITY
BETEX® induction heaters are proven to be reliable. Their sturdy styling and user-friendly design guarantees sustained, problem-free operation in an industrial environment. Our Standard series heaters are low frequency (50/60Hz). We also make use of the middle frequency (< 20kHz) principle for combined mounting and dismounting applications.

SERVICE & WARRANTY
Our expertise and experience ensure quality, reliability, professional advice and outstanding service. BETEX® induction heaters are supplied with clear instructions and a 3-year warranty on the electronic components.

WORKING PRINCIPLE
The heater works by inducing a (low frequency) current in the component to be heated. This is achieved by incorporating the component as a secondary winding in a transformer. The primary winding is connected to the mains power by means of an electronic control. The magnetic field induces a high current (short circuit current) through the component which consequently becomes hot. The work piece is automatically demagnetized after every heating cycle.

OUR RANGE INCLUDES
- Portable models
- Benchtop models
- Roll around models
- Heavy duty models
- Custom-made models
- Middle frequency for mounting and dismounting

ADVANTAGES OF BETEX® INDUCTION HEATERS
- Safety first!
- Environmentally friendly: no smoke, no open flames, no fumes, no oil waste.
- The energy saving alternative to traditional methods.
- Evenly distributed heating: the microprocessor controlled electronics prevent overheating and explosive heating.
- Robust design for working in industrial environments.
- For sealed (2RS-ZZ) and pre-lubricated bearings.
- Automatic power reduction.
- Automatic demagnetization to <2A/cm.
- Automatic reheat mode
- Unique, user-friendly swivel-arm construction.
- Suitable for continuous use (24/7).
- Designed for MRO and OEM departments
- 3 year warranty on electrical unit.
- Large choice; STANDARD and TURBO series, from 3.6 to 100 kVA.
- TURBO models: high output, very energy efficient.
- Practical solutions based on more than 37 years of experience.
- Meets CE and IEC requirements.
### STANDARD INDUCTION HEATERS - low frequency

- **Betex 22 ELDi Portable**
  - heating cap. 20 kg

- **Betex 22 ESDi**
  - heating cap. 65 kg

- **Betex 38 ESD**
  - heating cap. 150 kg

- **Betex 38 ZFD**
  - heating cap. 300 kg

- **Betex SUPER**
  - heating cap. 600 kg

- **Betex GIANT**
  - heating cap. 3500 kg

### TURBO INDUCTION HEATERS - low frequency

- **Betex 24 RLDi Portable TURBO**
  - heating cap. 50 kg

- **Betex 24 RSDi TURBO**
  - heating cap. 150 kg

- **Betex 40 RSD / 40 RSD M TURBO**
  - heating cap. 350 kg

- **Betex 40 RMD TURBO**
  - heating cap. 600 kg

- **Betex SUPER TURBO**
  - heating cap. 1200 kg

- **Betex GIANT TURBO**
  - heating cap. 12000 kg
STANDARD or TURBO?

TURBO models offer low energy consumption combined with high output as an added advantage. The maximum TURBO effect is achieved with heating in the horizontal position!

Comparison of heating times, Standard and TURBO induction heaters

Heat in horizontal position, up to 110°C, in minutes.

<table>
<thead>
<tr>
<th>Bearing no.</th>
<th>22322</th>
<th>22332</th>
<th>23148</th>
<th>22348</th>
<th>175296</th>
<th>Gear wheel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight kg</td>
<td>18 kg</td>
<td>50 kg</td>
<td>65.5 kg</td>
<td>147 kg</td>
<td>220 kg</td>
<td>300 kg</td>
</tr>
<tr>
<td>Bore/OD mm</td>
<td>110/240</td>
<td>160/340</td>
<td>240/400</td>
<td>220/500</td>
<td>350/580</td>
<td>210/600</td>
</tr>
<tr>
<td>22 ELDi 3,6 kVA, 230V</td>
<td>30.00</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>24 RLDi TURBO 3.6 kVA, 230V</td>
<td>03.47</td>
<td>23.00</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>22 ESDi 3,6 kVA, 230V</td>
<td>07.45</td>
<td>27.20</td>
<td>49.00</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>24 RSDi TURBO 3,6 kVA, 230V</td>
<td>--</td>
<td>06.03</td>
<td>19.20</td>
<td>47.00</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>38 ESD 8 kVA, 400V</td>
<td>02.58</td>
<td>07.10</td>
<td>11.50</td>
<td>31.20</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>40 RSD TURBO 8 kVA, 400V</td>
<td>--</td>
<td>02.00</td>
<td>03.58</td>
<td>07.10</td>
<td>26.50</td>
<td>15.00</td>
</tr>
<tr>
<td>38 ZFD 12 kVA, 400V</td>
<td>--</td>
<td>10.40</td>
<td>10.38</td>
<td>22.15</td>
<td>39.50</td>
<td>48.45</td>
</tr>
<tr>
<td>40 RMD TURBO 12 kVA, 400V</td>
<td>--</td>
<td>--</td>
<td>01.45</td>
<td>02.35</td>
<td>08.40</td>
<td>06.35</td>
</tr>
</tbody>
</table>

Heating times are subject to the relationship between:
- Minimum bore and maximum outside diameter, width, weight
- Required temperature and material type
- Available power

MF QUICK-HEATERS - middle frequency heaters

For mounting & dismounting

Middle frequency heaters, 10-20 kHz, are used for both mounting and dismounting.

Fixed and flexible inductors fit various diameters.
The ultimate tool for flameless heating
The BETEX iDuctor is a new professional type of induction hand tool. All sorts of metal parts, such as drive components, bearing housings, bolts, nuts, pipes and small surfaces can be heated locally. Thanks to the precise heating the surroundings retain a normal temperature. Stuck parts that are heated will expand and loosen.

This is an ideal solution for stuck nuts and bolts, where often a conventional blow torch or grinder are used. Using an open fire entails some form of risk and may cause polution. A grinder can spark and cause damage to the area surrounding the part. All in all, workplaces become much safer, cleaner and faster!

As standard the BETEX iDuctor comes in a handy carrying case, a 2-meter long flexible ‘wrappable’ inductor and a set of heat-resistant gloves (150°C).

Advantages
- Ergonomic design
- Time savings
- Cost savings
- Convenient
- Can be operated with one hand
- No open fire
- Safe to use
- Versatile
- For hard to reach locations
- Maintenance free

Optional
- Set of 9 inductors, consisting of 8 induction spirals in sizes min/max ID: 18-52 mm (bolt sizes M8-M30) and 1 U-inductor, ID 160 mm; all easy to exchange
- Flexibele inductor; 1.1 mtr
- iD-pad for heating flat surfaces to remove coating layers, decals
- Heat resistant gloves up to 300°C

Flexible inductor for heating different kinds of parts

Technical details page 34
PORTABLE - light weight induction heater

BETEX 24 XLDi portable - heating cap. 10 kg

Light weight induction heater for use in workshops and on site.

- Min. ID Ø: 0 mm
- Max. OD Ø: 180 mm
- Max. width: 50 mm
- Automatic demagnetisation
- Shoulder strap
- No yokes necessary
- Weighs only 7 kg

- Max. bearing weight: 10 kg
- Max. weight other parts: 7 kg

Technical details page 35

AREAS OF APPLICATION:

- Technical services
- MRO-organisation
- Service engineers
STANDARD Portable
BETEX 22 ELDi portable - heating cap. 20 kg

Portable heater for use in the workshop and on site.
- Min. ID Ø: 10 mm
- Max. OD Ø: 240 mm
- Max. width: 120 mm
- Automatic demagnetisation
- Automatic power reduction
- Including 5 yokes
- Shoulder strap
- Max. bearing weight: 20 kg
- Max. weight other parts: 10 kg

Technical details page 35

AREAS OF APPLICATION:
- Technical services
- MRO organisation
TURBO Portable

BETEX 24 RLDi TURBO - heating cap. 50 kg

Portable heater for use in the workshop and on site.

- Min. ID Ø: 10/100 mm
- Max. OD Ø: 380 mm
- Max. width: 135 mm
- Automatic demagnetisation
- Automatic power reduction
- Including 5 yokes
- Max. bearing weight 50 kg
- Max. weight other parts: 30 kg

Technical details page 35

AREAS OF APPLICATION:

- Technical services
- MRO organisation

✓ High output, energy efficient!

The TURBO effect only works when the component is in a horizontal position.
STANDARD Bench top

BETEX 22 ESDi - heating cap. 65 kg

AREAS OF APPLICATION:

- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector

Basic bench-top type with swivel arm for use in the workshop.

- Min. ID Ø: 15 mm
- Max. OD Ø: 380 mm
- Max. width: 150 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: set of 3 or 5 sizes

- Max. bearing weight: 65 kg
- Max. weight other parts: 30 kg

Optional:
- Adaptor yokes
- Max. OD Ø: 580 mm

Technical details page 36
TURBO Bench top

BETEX 24 RSi TURBO - heating cap. 150 kg

AREAS OF APPLICATION:

- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector

Basic bench-top type with swivel arm for use in the workshop.

- Min. ID Ø: 15/120 mm
- Max. OD Ø: 520 mm
- Max. width: 200 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: set of 3 or 5 sizes

- Max. bearing weight: 150 kg
- Max. weight other parts: 80 kg

Technical details page 36

High output, energy efficient!

The TURBO effect only works when the component is in a horizontal position.
STANDARD Bench top
BETEX 38 ESD - heating cap. 150 kg

AREAS OF APPLICATION:
- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector

Medium size bench-top type with swivel arm for use in the workshop.
- Min. ID Ø: 30 mm
- Max. OD Ø: 500 mm
- Max. width: 200 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: set of 2 or 3 sizes
- Max. bearing weight: 150 kg
- Max. weight other parts: 75 kg

Optional:
- Adaptor yokes
- Max. OD Ø: 720 mm

Technical details page 36
**TURBO Bench top**

**BETEX 40 RSD / 40 RSDm TURBO** - heating cap. 350 kg

**AREAS OF APPLICATION:**
- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector

Medium size bench-top type with swivel arm for use in the workshop.

- Min. ID Ø: 30/160 mm
- Max. OD Ø: 790 mm
- Max. width: 315 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: selection of 5 sizes

- Max. bearing weight: 350 kg
- Max. weight other parts: 250 kg

Technical details page 36

** ✓ High output, energy efficient!**

*The TURBO effect only works when the component is in a horizontal position*
STANDARD Roll around

BETEX 38 ZFD - heating cap. 300 kg

AREAS OF APPLICATION:

- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector

Roll-around heater with swivel arm and convenient folding operating panel.

- Min. ID Ø: 30 mm
- Max. OD Ø: 720 mm
- Max. width: 340 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: selection of 5 sizes
- Max. bearing weight: 300 kg
- Max. weight other parts: 200 kg

Optional:
- Adaptor yokes
- Max. OD Ø: 1080 mm

Technical details page 37
TURBO Roll around

BETEX 40 RMD TURBO - heating cap. 600 kg

AREAS OF APPLICATION:

- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- Railway sector
- MRO/OEM sector

Roll-around heater with swivel arm and convenient folding operating panel.

- Min. ID Ø: 60/175 mm
- Max. OD Ø: 920 mm
- Max. width: 365 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: selection of 3 sizes

- Max. bearing weight: 600 kg
- Max. weight other parts: 450 kg

Technical details page 37

The TURBO effect only works when the component is in a horizontal position.
STANDARD Heavy duty

BETEX SUPER - heating cap. 600 kg

AREAS OF APPLICATION:

- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector
- Wind energy
- Power plants
- Mining industry

Heavy duty heaters.

- Min. ID Ø: 60 mm
- Max. OD Ø: 900/1300 mm
- Max. width: 400/700 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: selection of 5 sizes

- Max. bearing weight: 600 kg
- Max. weight other parts: 350 kg

Optional:
- electric crane
- enlarged width 700 mm: DL700

NB: these technical data are indicative and dependent on the amount of power and type of heater.

Technical details page 37

Heating times are subject to the relationship between:

- Min. bore and max. outside diameter, width, weight.
- Required temperature and material type.
- Available power.
TURBO Heavy duty

BETEX SUPER TURBO - heating cap. 1200 kg

AREAS OF APPLICATION:

- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector
- Wind energy
- Power plants
- Mining industry

Heavy duty heaters.

- Min. ID Ø: 175/200 mm
- Max. OD Ø: 1700 mm
- Max. width: 750 mm
- Automatic demagnetisation
- Automatic power reduction
- Including 1 yoke

- Max. bearing weight: 1200 kg
- Max. weight other parts: 900 kg

NB: these technical data are indicative and dependent on the amount of power and type of heater.

Technical details page 37
STANDARD Heavy duty

BETEX GIANT - heating cap. 3500 kg

AREAS OF APPLICATION:

- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector
- Wind energy
- Power plants
- Mining industry

Heavy duty heaters.

- Min. ID Ø: 85/215 mm
- Max. OD Ø: 1400-2500 mm
- Max. width: 440-990 mm
- Automatic demagnetisation
- Automatic power reduction
- Yokes: selection of 5 sizes

- Max. bearing weight: 1500-3500 kg
- Max. weight other parts: 900-2500 kg

Optional:
- electric crane
- enlarged width 700 mm: DL700
- enlarged width 1000 mm: DL1000

NB: these technical data are indicative and dependent on the amount of power and type of heater.

Technical details page 37

Heating times are subject to the relationship between:

- Min. bore and max. outside diameter, width, weight.
- Required temperature and material type.
- Available power.
**TURBO Heavy duty**

**BETEX GIANT TURBO** - heating cap. 12000 kg

**AREAS OF APPLICATION:**
- Chemical industry
- Steel industry
- Paper industry
- Gearbox manufacturers
- Machine building
- Transport sector
- MRO/OEM sector
- Wind energy
- Power plants
- Mining industry

**High output, energy efficient!**

**Heavy duty heaters.**
- Min. ID Ø: 115 - 240 mm
- Max. OD Ø: 1400-2500 mm
- Max. width: 450-1020 mm
- Automatic demagnetisation
- Automatic power reduction
- Including 1 yoke
- Max. bearing weight: 1500-12000 kg
- Max. weight other parts: < 12000 kg

NB: these technical data are indicative and dependent on the amount of power and type of heater.

*Technical details page 37*
Middle Frequency induction heating is a safe and cost effective heating method, which improves the quality of installation or maintenance. This method is fast, simple and energy efficient, compared to conventional methods.

Middle frequency technology makes it easier and quicker to transfer effective energy in the part. The MF Quick-Heater is compact and mobile so it's easy for you to move around. This system is also clean and operates very quietly. It saves you time as it can be deployed very rapidly (fewer actions) and heats faster than conventional methods. Energy use is much lower thanks to its more efficient electricity consumption.

There is a choice of 2 Inductors:
- **Fixed inductors** can be used at serial work.
- **Flexibel inductors** can be used multifunctional. Ideal when there are different designs or sizes.

Each heater is customised to your needs and supplied with required size(s) of inductors.
THE SMART, ECO-FRIENDLY WAY OF HEATING

- **Economic**: One device for Mounting and Dismounting.
- **Choice between two standard generators**: 22 or 44 kW.
  Low connection power (32/63 Amp).
- **Choice** between Fixed and/or Flexible inductors.
- **Safe**: Temperature controlled heating: overheating is not possible because demand is constantly monitored and if necessary adjusted. When the preset temperature is reached, the device will switch off automatically.
- **Energy efficient operation**: Short heating times and process optimization.
- **Clean and environment friendly**: No oil, gas, no pre-heating necessary (lower CO2 emissions).
- **Flexible operation**: Compact and easy to transport on site.

- **Versatile**: The inductors can be placed both in and around the component. You can also place a component on a flat surface (table model) or work with flexible inductors. The inductors are supplied in various diameters, fixed or flexible according to your requirements.
- **Smart Inductor recognition**: When a part is connected for a second time to the inductor, automatically correct settings are selected. Simply press the START button and the job is done.
- **Air-cooled**: No water cooling needed.
- **Automatic demagnetization**

- For mounting, dismounting, preheating
- Controlled heating
- Low connection power (32/63 Amp)
- Generators are adjustable from 2.5- 44 kW
- Easy to use, flexible and mobile
- Suitable for production and maintenance applications
- NO: Residual magnetism, fire hazard, excessive noise or polluting fumes.
HEATING METHODS

Method 1
• Fixed inductor
Heating with an inductor around the component. Energy input from outside to inside.
For bearing rings, pipes and rings.

Method 2
• Fixed inductor
Heating with an inductor in the component. Energy input is outwards.
For bored holes for gearboxes, bearing bores in housings.

Method 3
• Table inductor
The part is lying flat on an inductor table and heated in a very short time to required temperature.
This method is suitable for light products that require serial heating.

Method 4
• Flexible inductor
The flexible inductor is wrapped around a component, for example a gear coupling which was removed smoothly, with no damage to the shaft.
Suitable for non-cylindrical shapes or extreme dimensions.

Technical details page 38
Middle frequent induction heating is a superior, fast and controlled heating method. It prevents unnecessary damage to parts and reduces wear and tear.

Paper/printing industry

This printing company could not dismantle bearing sleeves in-house - not without serious damage to part and paper roll - so the job was outsourced. This was not very efficient as it involved transport back and forward, costs for the getting the job done etc etc. Bega ran tests for them with positive result. Customer can do the job on location with their own MF Quick-Heater and are rapidly earning the investment back.

Rail/Metro industry

Easy dismantling of inner rings, NU-NJ bearings, labyrinth rings.

In this case the perfect even heating resulted in a safe, fast and clean job.

Steel industry (Rolling mill)

In this example the MF Quick-Heater is used to dismantle bearing inner rings. This method generates enormous time saving, prevents damage and improves productivity.

Machine building, gear & drive systems

Using the flexible inductors the bore of a this giant cable pulley is heated so the bearing can be installed properly.

Drive technology

This gear (3.5 t) is heated up to 165 °C in 2 hours time. Customer is saving time, energy and has greatly improved work efficiency by reducing heating time from 8 to 2 hours.

Steel plant

Couplings were removed using a 22 kW generator and a flexible coil. In 3 minutes temperature of 100°C was reached. The old method lasted 2 hours so time saving was tremendous. The new method also caused improvement in working conditions: cleaner and quieter!

FIND MORE APPLICATION EXAMPLES ON OUR WEBSITE

WWW.BEGA.NL

Areas of application:
- Steel
- Paper
- Wind
- Transport
- Rail/Metro
- Chemical
- Power plants
- Gearbox manufacturing
- Machine building
- MRO/OEM and more …….

Design and manufacturing: by Bega International BV, Vaassen, The Netherlands
Rail transport

Bega has offered many solutions in the area of heating components in the rail transport sector. The most important advantages for our customers are:

- Time and energy efficient
- Can be immediately deployed, no pre-heating time needed.
- Controlled heat, no quality loss.
- Fast, safe, clean, stress-free heating.
- Environmentally friendly, no flames, smoke or noise.
- Capacities and types to the client’s requirements.

References available on request.

For more information: www.bega.nl
Wind energy

Bega has been supplying induction heaters for many years for the sustainable manufacture of wind turbines. Here we show some examples of successful projects with manufacturers and suppliers in this sector.

The most important advantages for our customers are:

- Time and energy efficient.
- Can be immediately deployed, no pre-heating time needed.
- Controlled heat; no quality loss.
- Fast, safe, clean, stress-free heating.
- Environmentally friendly, no flames, smoke or noise.
- Capacities and types to the client’s requirements.

For more information: www.bega.nl
Wind energy

BETEX GIANT TURBO
Client: supplier of wind turbine components
Component: bearing housing
Weight: 4300 kg
Temp.: 90°C
Time: 55 min.
Machine building

Our large heaters are very suitable for heavy and large components where safe, rapid and stress-free heating is a priority.

Bega Special Tools designs and produces customised powerful and sturdy heaters for various industrial environments on request.

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**BETEX GIANT DL-1000**

Client: manufacturer of steel profiles  
Component: steel roll  
Weight: up to 12000 kg

This company was using blow torches and was looking for an environmental friendly method.  
Opting for induction heating was obvious and satisfied the client’s needs in several ways, also due to the controlled and stress-free heating of the sections.
Bega Special Tools designs and builds custom-made heaters for serial heating of components such as bearings, gear wheels, bushes, rings and aluminium housings of E-motors.

When fast and accurate heating is imperative, these ‘Specials’ offer surprising solutions. For example, it is possible to integrate them into fully automated production processes, even with a pick-and-place unit if desired. A huge advantage is the use of low frequency (50/60Hz), which costs much less than middle or high frequency solutions.

The most important advantages for our customers are:

- Heating times from 30 seconds to temperatures up to < 300°C.
- Energy-saving production method
- Increase in production capacity
- Safe, rapid, simple operation

References available on request.

For more information: www.bega.nl

Heating bores in housings
For mounting bearings and pins (including in frames and gearboxes).
## TECHNICAL DATA - iDuctor 1, handheld

<table>
<thead>
<tr>
<th>Type BETEX</th>
<th>iDuctor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage/Amp/Hz</td>
<td>230V/6A, 50/60Hz</td>
</tr>
<tr>
<td>Power</td>
<td>1200W</td>
</tr>
<tr>
<td>Thermal protection</td>
<td>yes</td>
</tr>
<tr>
<td>Error code</td>
<td>yes</td>
</tr>
<tr>
<td>Cooling fan</td>
<td>yes</td>
</tr>
<tr>
<td>Microprocessor controlled, automatic power controle in case of overload or overheating.</td>
<td>yes</td>
</tr>
<tr>
<td>LED lighting</td>
<td>yes</td>
</tr>
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</table>

### Inductors

<table>
<thead>
<tr>
<th>Article</th>
<th>Article number</th>
<th>Conductor thickness mm</th>
<th>Internal diameter mm</th>
<th>Winding mm</th>
<th>Length mm</th>
<th>Temperature insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inductor 1.1 mtr</td>
<td>231202</td>
<td>3.5</td>
<td>-</td>
<td>-</td>
<td>1100</td>
<td>650°C</td>
</tr>
<tr>
<td>Inductor 2.0 mtr</td>
<td>231203</td>
<td>3.5</td>
<td>-</td>
<td>-</td>
<td>2000</td>
<td>650°C</td>
</tr>
<tr>
<td>IDpad</td>
<td>231205</td>
<td>3.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>250°C</td>
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<tr>
<td>Inductor Set 9 pc.</td>
<td>231204</td>
<td>3.5</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>250°C</td>
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</table>

### Spareparts *

<table>
<thead>
<tr>
<th>Set 9 pc.</th>
<th>Article number</th>
<th>Conductor thickness mm</th>
<th>Internal diameter mm</th>
<th>Winding mm</th>
<th>Length mm</th>
<th>Temperature insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>M30</td>
<td>-</td>
<td>3.5</td>
<td>52</td>
<td>3.5</td>
<td>240</td>
<td>250°C</td>
</tr>
<tr>
<td>M24</td>
<td>-</td>
<td>3.5</td>
<td>47</td>
<td>3.5</td>
<td>240</td>
<td>250°C</td>
</tr>
<tr>
<td>M20</td>
<td>-</td>
<td>3.5</td>
<td>40</td>
<td>3.5</td>
<td>200</td>
<td>250°C</td>
</tr>
<tr>
<td>M16</td>
<td>-</td>
<td>3.5</td>
<td>32</td>
<td>3.5</td>
<td>200</td>
<td>250°C</td>
</tr>
<tr>
<td>M12</td>
<td>-</td>
<td>3.5</td>
<td>26</td>
<td>3.5</td>
<td>200</td>
<td>250°C</td>
</tr>
<tr>
<td>M10</td>
<td>-</td>
<td>3.5</td>
<td>23</td>
<td>3.5</td>
<td>250</td>
<td>250°C</td>
</tr>
<tr>
<td>M10</td>
<td>-</td>
<td>3.5</td>
<td>23</td>
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<td>150</td>
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</tr>
<tr>
<td>M08</td>
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<td>18</td>
<td>3.5</td>
<td>150</td>
<td>250°C</td>
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<tr>
<td>Ucoil</td>
<td>-</td>
<td>3.5</td>
<td>160</td>
<td>0.5</td>
<td>600</td>
<td>250°C</td>
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### TECHNICAL DATA - Portable

<table>
<thead>
<tr>
<th>Type BETEX</th>
<th>24 XLDi Portable</th>
<th>22 ELDi Standard Portable</th>
<th>24 RLDi TURBO Portable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility power:</td>
<td>1200W</td>
<td>3.6 kVA</td>
<td>3.6 kVA</td>
</tr>
<tr>
<td>standard</td>
<td>230V/6A</td>
<td>230V/16A</td>
<td>230V/16A</td>
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<tr>
<td>Voltage/Amp*:</td>
<td>optional</td>
<td>120V/15A</td>
<td></td>
</tr>
<tr>
<td>standard</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
</tr>
<tr>
<td>Yokes, standard</td>
<td>no</td>
<td>7,10,14,20,40</td>
<td>7,10,14,20,40</td>
</tr>
<tr>
<td>mm/ set 1</td>
<td></td>
<td>in box</td>
<td>in heater</td>
</tr>
<tr>
<td>Yokes, standard</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mm/ set 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swivel arm</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. weight ± kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- bearings</td>
<td>10</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>- other parts</td>
<td>7</td>
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<td>30</td>
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<tr>
<td>Min. Ø Ø: mm:</td>
<td>0</td>
<td>10</td>
<td>10/Ø100</td>
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<tr>
<td>vertical/horizontal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. OD Ø: mm</td>
<td>180</td>
<td>240</td>
<td>380</td>
</tr>
<tr>
<td>&quot;A&quot;</td>
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<td></td>
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<tr>
<td>Max. width: mm</td>
<td>50</td>
<td>120</td>
<td>135</td>
</tr>
<tr>
<td>&quot;B&quot;</td>
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</tr>
<tr>
<td>Max. width at</td>
<td></td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>horizontal heating: mm</td>
<td>no</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cross section poles mm</td>
<td>no</td>
<td>40</td>
<td>Ø100</td>
</tr>
<tr>
<td>&quot;C&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pole height mm</td>
<td>no</td>
<td>130</td>
<td>165</td>
</tr>
<tr>
<td>&quot;D&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature control °C/°F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- max reach*</td>
<td>150°C</td>
<td>150°C</td>
<td>240°C</td>
</tr>
<tr>
<td>- magnetic probe</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>- digital display</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Time control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- max. reach</td>
<td>0-45 min.</td>
<td>0-30 min.</td>
<td>0-45 min.</td>
</tr>
<tr>
<td>- digital display</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Sound signal</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Error report</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Temperature hold</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Automatic power reduction</td>
<td>-</td>
<td>-</td>
<td>yes</td>
</tr>
<tr>
<td>Automatic demagnetising, &lt;2A/cm</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Thermal safety guard</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Support for horizontal heating</td>
<td>-</td>
<td>-</td>
<td>yes</td>
</tr>
<tr>
<td>Dimensions mm (lxbxh)</td>
<td>460x240x280</td>
<td>460x240x280</td>
<td>600x220x275</td>
</tr>
<tr>
<td>Weight heater kg</td>
<td>7</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>excl. Yokes</td>
<td></td>
<td>(incl. yokes)</td>
<td>(incl. yokes)</td>
</tr>
<tr>
<td>Electric crane for yokes</td>
<td>no</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alarm signal</td>
<td>no</td>
<td>-</td>
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</tr>
<tr>
<td>Mobile</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Heating times are subject to the relationship between:**
- Min. bore and max. outside diameter, width, weight
- Required temperature and material type
- Available power

**TURBO-Design: high output, efficient energy!**
## TECHNICAL DATA - Benchtop

<table>
<thead>
<tr>
<th>Type BETEX</th>
<th>22 ESDi</th>
<th>24 RSDi TURBO</th>
<th>38 ESD</th>
<th>40 RSD en RSDm (mobile) TURBO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility power: standard</td>
<td>3.6 kVA</td>
<td>3.6 kVA</td>
<td>8 kVA</td>
<td>8 kVA</td>
</tr>
<tr>
<td>Voltage/Amp*: standard</td>
<td>230V/16A</td>
<td>230V/16A</td>
<td>400V/20A</td>
<td>400V/20A</td>
</tr>
<tr>
<td>Voltage/Amp*: optional</td>
<td>120V/15A</td>
<td>120V/15A</td>
<td>500V/20A</td>
<td>500V/20A</td>
</tr>
<tr>
<td>Frequenz Hz</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
</tr>
<tr>
<td>Yokes, standard mm/ set 1</td>
<td>14,30,60</td>
<td>14,30,60</td>
<td>30,70</td>
<td>optional</td>
</tr>
<tr>
<td>Yokes, standard mm/ set 2</td>
<td>10,14,20,30,60</td>
<td>10,14,20,30,60</td>
<td>20,30,70</td>
<td>20,30,40,60,80</td>
</tr>
<tr>
<td>Swivel arm</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Max. weight ± kg</td>
<td>65</td>
<td>150</td>
<td>150</td>
<td>350</td>
</tr>
<tr>
<td>- bearings</td>
<td>30</td>
<td>80</td>
<td>75</td>
<td>250</td>
</tr>
<tr>
<td>Min. ID Ø: mm: vertical/horizontal</td>
<td>15/Ø100</td>
<td>15/Ø120</td>
<td>30/Ø110</td>
<td>30/Ø160</td>
</tr>
<tr>
<td>Max. OD Ø: mm</td>
<td>380/580</td>
<td>520</td>
<td>500/720</td>
<td>790</td>
</tr>
<tr>
<td>Max. width: mm</td>
<td>150</td>
<td>200</td>
<td>200</td>
<td>315</td>
</tr>
<tr>
<td>Max. width at horizontal heating: mm</td>
<td>125</td>
<td>230</td>
<td>180</td>
<td>280</td>
</tr>
<tr>
<td>Cross section poles mm</td>
<td>60</td>
<td>Ø120</td>
<td>70</td>
<td>Ø160</td>
</tr>
<tr>
<td>Pole height mm</td>
<td>140</td>
<td>230</td>
<td>210</td>
<td>320</td>
</tr>
<tr>
<td>Temperature control °C/ F</td>
<td>240°C</td>
<td>240°C*2</td>
<td>240°C*2</td>
<td>240°C*2</td>
</tr>
<tr>
<td>- max reach*</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<tr>
<td>- magnetic probe</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>- digital display</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Time control</td>
<td>0-45 min.</td>
<td>0-45 min.</td>
<td>0-60 min.</td>
<td>0-60 min.</td>
</tr>
<tr>
<td>- max. reach</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>- digital display</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Sound signal</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Error report</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Temperature hold</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Automatic power reduction</td>
<td>-</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Automatic demagnetising, &lt;2A/cm</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Thermal safety guard</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Support for horizontal heating</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Dimensions mm (lxbxh)</td>
<td>340x290x380</td>
<td>440x370x420</td>
<td>630x365x470</td>
<td>1200x640x1000</td>
</tr>
<tr>
<td>Weight heater kg excl. Yokes</td>
<td>31</td>
<td>37</td>
<td>53</td>
<td>65/105</td>
</tr>
<tr>
<td>Electric crane for yokes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>optional</td>
</tr>
<tr>
<td>Alarm signal</td>
<td>-</td>
<td>-</td>
<td>optional</td>
<td>yes (40RSDm)</td>
</tr>
<tr>
<td>Mobile</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>yes</td>
</tr>
</tbody>
</table>

Heating times are subject to the relationship between:
- Min. bore and max. outside diameter, width, weight
- Required temperature and material type
- Available power

**TURBO-Design:** high output, efficient energy!
### TECHNICAL DATA - Roll around, heavy duty

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Power</td>
<td>12 kVA</td>
<td>12 kVA</td>
<td>24 kVA</td>
<td>24 kVA</td>
<td>40 kVA</td>
<td>48, 100 kVA</td>
<td>40, 48, 100 kVA</td>
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<tr>
<td>Voltage</td>
<td>400V/30A</td>
<td>400V/30A</td>
<td>400V/60A</td>
<td>400V/60A</td>
<td>400V/100A</td>
<td>400V/120,250A</td>
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<td>Frequency</td>
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<td>50/60Hz</td>
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<tr>
<td>Units</td>
<td>20,30,40,60,80</td>
<td>40,60,80</td>
<td>40,50,60,80,100*3</td>
<td>1 yoke</td>
<td>60,80,100,150*4</td>
<td>60,80,100,150,200*4</td>
<td>1 yoke</td>
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<tr>
<td>Additional Info</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<tr>
<td>Available Options</td>
<td>12 kVA</td>
<td>400V/30A</td>
<td>500V/60A</td>
<td>400V/100A</td>
<td>500V/120,250A</td>
<td>500V/120,250A</td>
<td>500V/100,120,250A</td>
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<tr>
<td>Available Options</td>
<td>50/60Hz</td>
<td>optional</td>
<td>50/60Hz</td>
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<td>50/60Hz</td>
<td>optional</td>
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<tr>
<td>Available Options</td>
<td>20,30,40,60,80</td>
<td>40,60,80</td>
<td>40,50,60,80,100*3</td>
<td>1 yoke</td>
<td>60,80,100,150*4</td>
<td>60,80,100,150,200*4</td>
<td>1 yoke</td>
</tr>
<tr>
<td>Available Options</td>
<td>yes</td>
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<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Additional Info</td>
<td>300</td>
<td>600</td>
<td>600</td>
<td>1200</td>
<td>1500/2000*3</td>
<td>3000/3500*3</td>
<td>1500/12000*3</td>
</tr>
<tr>
<td>Additional Info</td>
<td>400</td>
<td>450</td>
<td>350</td>
<td>900</td>
<td>900/1500*3</td>
<td>1500/2500*3</td>
<td>&lt;12000*3</td>
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<tr>
<td>Additional Info</td>
<td>720/1080*1</td>
<td>60/0175</td>
<td>60/85*3</td>
<td>175/Ø200</td>
<td>85/3</td>
<td>85/215*3</td>
<td>115/240*3</td>
</tr>
<tr>
<td>Additional Info</td>
<td>340</td>
<td>365</td>
<td>400/700*3</td>
<td>750</td>
<td>620/700*3</td>
<td>700/900*3</td>
<td>450/1020*3</td>
</tr>
<tr>
<td>Additional Info</td>
<td>290</td>
<td>305 adj. supports</td>
<td>320 fixed supports</td>
<td>390/690*3</td>
<td>600</td>
<td>440/730*3</td>
<td>730/990*3</td>
</tr>
<tr>
<td>Additional Info</td>
<td>80</td>
<td>Ø175</td>
<td>100*3</td>
<td>Ø200</td>
<td>150*3</td>
<td>150/200*3</td>
<td>200*3</td>
</tr>
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<td>Additional Info</td>
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<td>660/740*3</td>
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<td>1000x500x1350*3</td>
<td>1600x700x1300</td>
<td>1750x600x1470*3</td>
<td>2150x900x2210*3</td>
<td>2350x1000x1875*3</td>
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<td>205 adj. supports</td>
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<td>450 kg (incl yoke)</td>
<td>660/800 kg*3</td>
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*1 With adaptor yokes, only available for the Standard models

*2 On request: 350ºC with heavy duty sensor and extra isolation

*3 Subject to power and execution

On request: other voltage/ amperage/ higher temperature up to 480ºC

Reference list available on request

For more information: WWW.BEGA.NL
<table>
<thead>
<tr>
<th>Type BETEX MF Quick-Heater</th>
<th>22 kW</th>
<th>44 kW</th>
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<tr>
<td>Cooling</td>
<td>forced air cooling</td>
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<td>Active power</td>
<td>2.5 - 22 kW</td>
<td>2.5 - 44 kW</td>
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<td>Frequency</td>
<td>10-20 kHz</td>
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<td>Mains voltage</td>
<td>3x 400V / 50 Hz</td>
<td>3x 400V / 50 Hz</td>
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<td>Connection (plug)</td>
<td>32A</td>
<td>63A</td>
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<tr>
<td>Main fuse</td>
<td>32A</td>
<td>63A</td>
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<td>Temperature measurement</td>
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<td>Inductor recognition</td>
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<td>yes</td>
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<tr>
<td>Temperature sensor</td>
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<td>yes, for max max 300°C</td>
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<tr>
<td>Dimensions generator LxBxH</td>
<td>553 x 500 x 700 mm</td>
<td>640 x 1050 x 1856 mm</td>
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<td>Weight incl trolley</td>
<td>135 kg</td>
<td>185 kg</td>
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**Operation and displays:**

| Setpoint power            | via touchscreen | via touchscreen |
| Setpoint temperature      | via touchscreen | via touchscreen |
| Setpoint timer            | via touchscreen | via touchscreen |
| Selectie time or temperature mode | via touchscreen | via touchscreen |
| Digital readings temperature | setpoint and actual value on the touchscreen | setpoint and actual value on the touchscreen |
| Digital readings time     | setpoint and actual value on the touchscreen | setpoint and actual value on the touchscreen |
| Digital readings power    | actual value on the touchscreen | actual value on the touchscreen |
| Digital readings frequency | actual value on the touchscreen | actual value on the touchscreen |

**Signaling by:**

| Ready message            | green continuous light | green continuous light |
| Installation in operational state | green flash light | green flash light |
| Error message            | red continuous light | red continuous light |
| End of heating cycle/ error | acoustic signal | acoustic signal |

**Min. winding diameter flexible inductors 22 kW**

<table>
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<tr>
<th>Type m² / °C</th>
<th>Diameter cable</th>
<th>Min. winding diameter</th>
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<tbody>
<tr>
<td>15/20/25/30m²/180°C</td>
<td>Ø 12 mm</td>
<td>ca. 75 mm</td>
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<tr>
<td>15/20/25/30m²/180°C</td>
<td>Ø 15 mm</td>
<td>ca. 100 mm</td>
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<tr>
<td>15/20/25/30m²/300°C</td>
<td>Ø 20 mm</td>
<td>ca. 120 mm</td>
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</table>

**Min. winding diameter flexible inductors 44 kW**

<table>
<thead>
<tr>
<th>Type m² / °C</th>
<th>Diameter cable</th>
<th>Min. winding diameter</th>
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<tbody>
<tr>
<td>15/20/25/30m²/180°C</td>
<td>Ø 19 mm</td>
<td>ca. 140 mm</td>
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<tr>
<td>15/20/25/30m²/300°C</td>
<td>Ø 28 mm</td>
<td>ca. 220 mm</td>
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</table>
OTHER BEGA SPECIAL TOOLS: