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BEGA SPECIAL TOOLS

ANNO 1978

BETEX®
INDUCTION HEATERS

THE SUPERIOR METHOD

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BETEX INDUCTION POWER TOOLS®

BEGA SPECIAL TOOLS
ANNO 1978

Professional Solutions With Proven Quality & Performance!

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.

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 POWER TOOLS®

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Bega is not responsible for any damage occurring as a direct or indirect result of the use of the information from this publication.

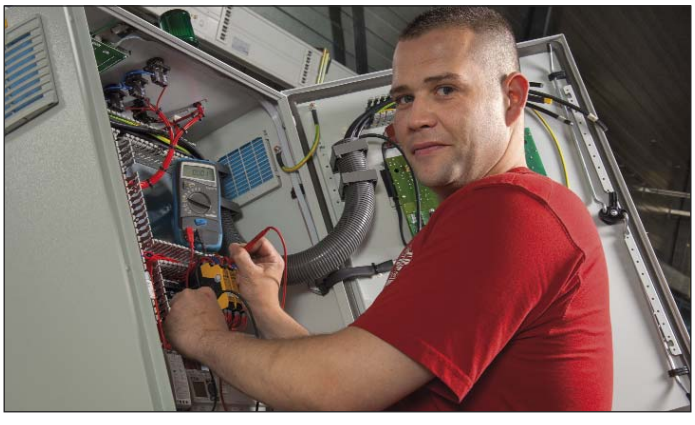
MADE IN HOLLAND

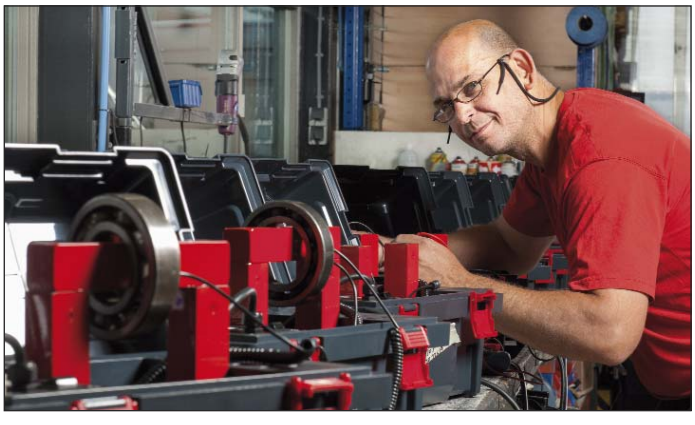
BETEX® INDUCTION HEATERS
are designed and produced by Bega International BV in Vaassen, The Netherlands. Our heaters are used all over the world.

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 Certified by TUV and DEKRA to CSA (Canada) and UL (USA) standard.
Bega is VCA certified. We perform electrical inspections in accordance with NEN 3140.





BETEX INDUCTION POWER TOOLS®

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ACCESSORIES

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.

INDUCTION HEATERS

Bega develops, manufactures and sells worldwide a wide range of BETEX® induction heaters for professional use in industry and industrial services.

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.

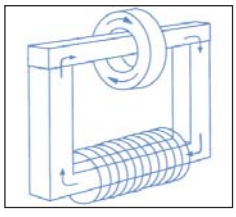
SERVICE & WARRANTY

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.

Certified by TUV/DEKRA. CSA (Canada) and UL (USA)

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 whichconsequently 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 ELD*i* Portable
heating cap. 20 kg

Betex 22 ESD*i*
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

High output, energy efficient!

Betex 24 RLD*i* Portable **TURBO**
heating cap. 50 kg

Betex 24 RSD*i* **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

BETEX INDUCTION POWER TOOLS®

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
Heating in horizontal position, upto 110°C, in minutes.

Bearing no.	22322	22332	23148	22348	175296	Gear wheel
Weight kg	18 kg	50 kg	65,5 kg	147 kg	220 kg	300 kg
Bore/OD mm	110/240	160/340	240/400	220/500	350/580	210/600
22 ELD*i* 3,6 kVA, 230V	30.00	--	--	--	--	--
24 RLD*i* TURBO 3,6 kVA, 230V	03.47	23.00	--	--	--	
22 ESD*i* 3,6 kVA, 230V	07.45	27.20	49.00	--	--	--
24 RSD*i* TURBO 3,6 kVA, 230V	--	06.03	19.20	47.00	--	--
38 ESD 8 kVA, 400V	02.58	07.10	11.50	31.20	--	--
40 RSD TURBO 8 kVA, 400V	--	02.00	03.58	07.10	26.50	15.00
38 ZFD 12 kVA, 400V	--	10.40	10.38	22.15	39.50	48.45
40 RMD TURBO 12 kVA, 400V	--	--	01.45	02.35	08.40	06.35

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

22 kW

44 kW

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

Fixed and flexible inductors fit various diameters.

PORTABLE - handheld induction heater

BETEX iDuctor 1

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).

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 upto 300°C

Spirals and flexibele inductors

ID-pad

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

Flexible inductor for heating different kinds of parts

Technical details page 34

PORTABLE - light weight induction heater

BETEX 24 XLD*i* 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 ELD*i* 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

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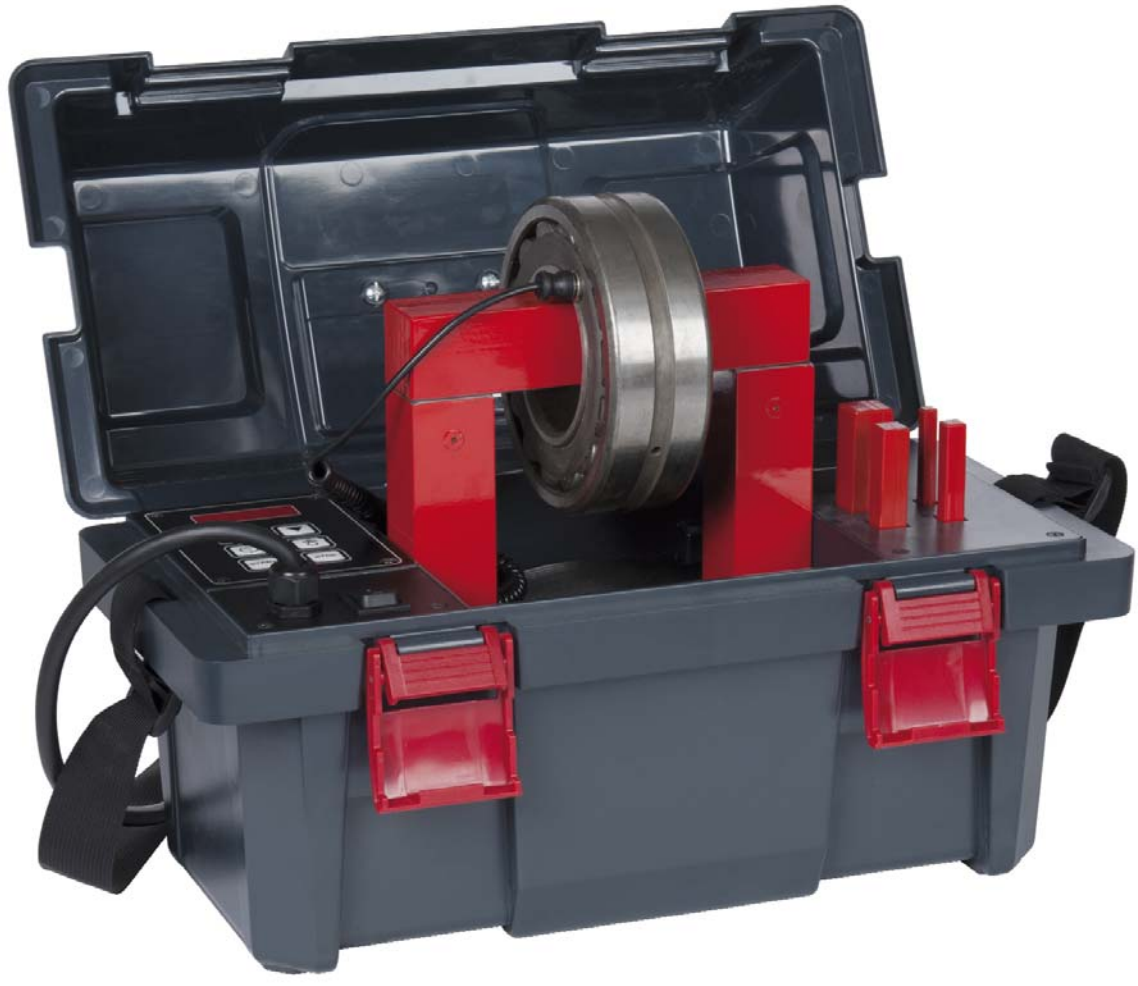
AREAS OF APPLICATION:

- Technical services
- MRO organisation



TURBO Portable

BETEX 24 RLD*i* 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!

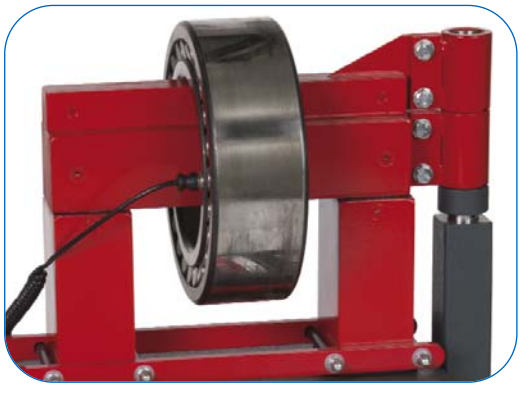
The TURBO effect only works when the component is in a horizontal position

STANDARD Bench top

BETEX 22 ESD*i* - 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**

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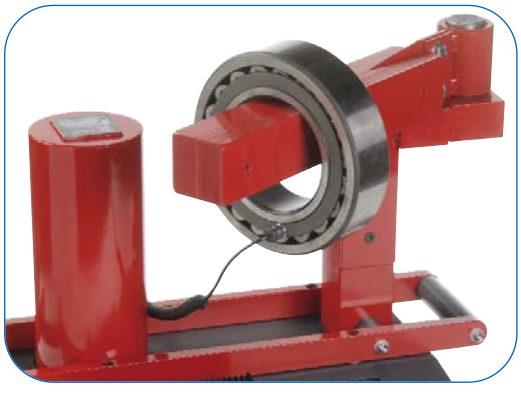
BETEX INDUCTION POWER TOOLS®

TURBO Bench top

BETEX 24 RSDi 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!

BETEX 40 RSDm TURBO ▶ roll-around option

The TURBO effect only works when the component is in a horizontal position

BETEX INDUCTION POWER TOOLS®

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

Folding operating panel from ZFD/RMD/RSD series

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

High output, energy efficient!

◀ *Folding operating panel from ZFD/RMD/RSD series*

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

High output, energy efficient!

The TURBO effect only works when the component is in a horizontal position

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

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

High output, energy efficient!

The TURBO effect only works when the component is in a horizontal position

INDUCTION HEATER FOR MOUNTING & DISMOUNTING

BETEX MF QUICK-HEATER - middle frequency technology

For mounting & dismounting of powertransmission components in MRO and OEM companies: bearings, labyrinth rings, bearing rings, sleeves, bushes, couplings, gears ...

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.

BETEX INDUCTION POWER TOOLS®

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**

ECO friendly

✓ For mounting, dismounting, preheating

✓ Controlled heating

✓ Low connection power (32/63 Amp)

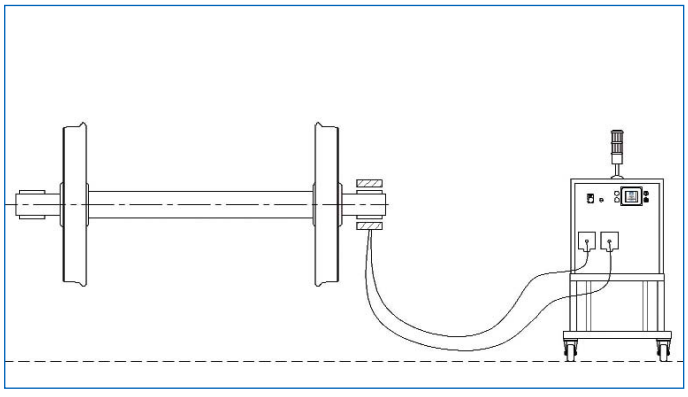
✓ Generators are adjustable from 2.5- 44 kW

✓ Easy to use, flexible and mobile

✓ Suitable for production and maintenance applications

✓ NO: Residual magnetism, fire hazard, excessive noise or polluting fumes.

HEATING METHODS

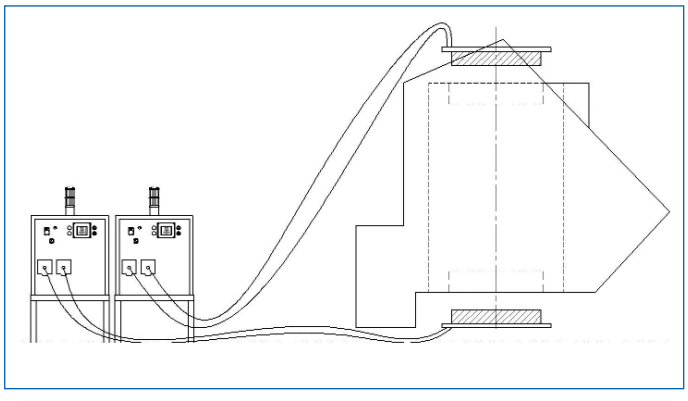


Method 1

• Fixed inductor

Heating with an inductor around the component. Energy input from outside to inside.

For bearing rings, pipes and rings.

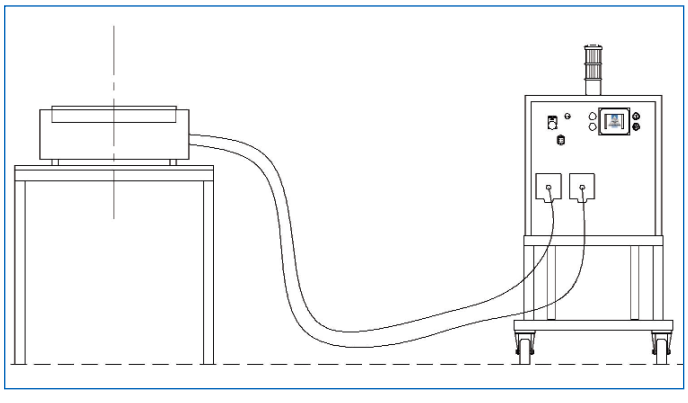


Method 2

• Fixed inductor

Heating with an inductor in the component. Energy input is outwards.

For bored holes for gearboxes, bearing bores in housings.

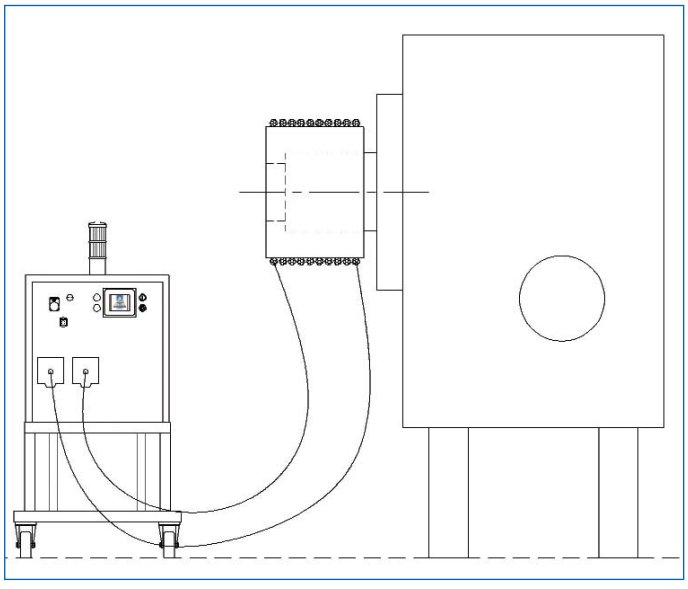


Method 3

• 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.

◀ Steel industry (Rolling mill)
In this example the MF Quick-Heater is used to dismanlte bearing inner rings.
This method generates enormous time saving, prevents damage and improves productivity.

▼ 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.

◀ 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 upto 165 °C in 2 hours time.
Customer is saving time, energy and has greatly improved work efficiency by reducting 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!

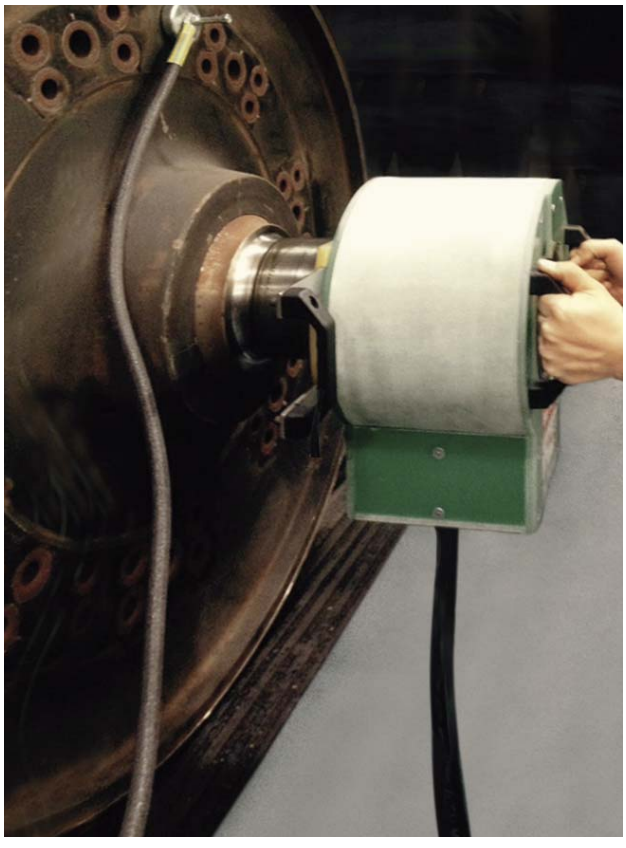
FIND MORE APPLICATION EXAMPLES ON OUR WEBSITE

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

BETEX INDUCTION POWER TOOLS®



RAIL
TRANSPORT

WIND
ENERGY

MACHINE
BUILDING

CUSTOM
MADE

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

BETEX GIANT TURBO
For heating wheel for subways, trams, trains and locomotives.

BETEX 40 RSDm TURBO 8 kVA ▼

Client:	manufacturer of drive systems for trains
Component:	gearwheel
Weight:	150 kg
Max. temp.:	150°C
Required time:	35 minutes

◀ BETEX GIANT

Client:	manufacturer of bogie sets
Component:	train wheel
Weight:	330 kg
Max. temp.:	240°C
Required time:	27 minutes
Optional:	slide-in induction yoke

BETEX GIANT ▲

Client:	supplier of rail components
Component:	rail track
Max. temp.:	250°C
Required time:	7 minutes

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

BETEX GIANT TURBO 48-100 kVA

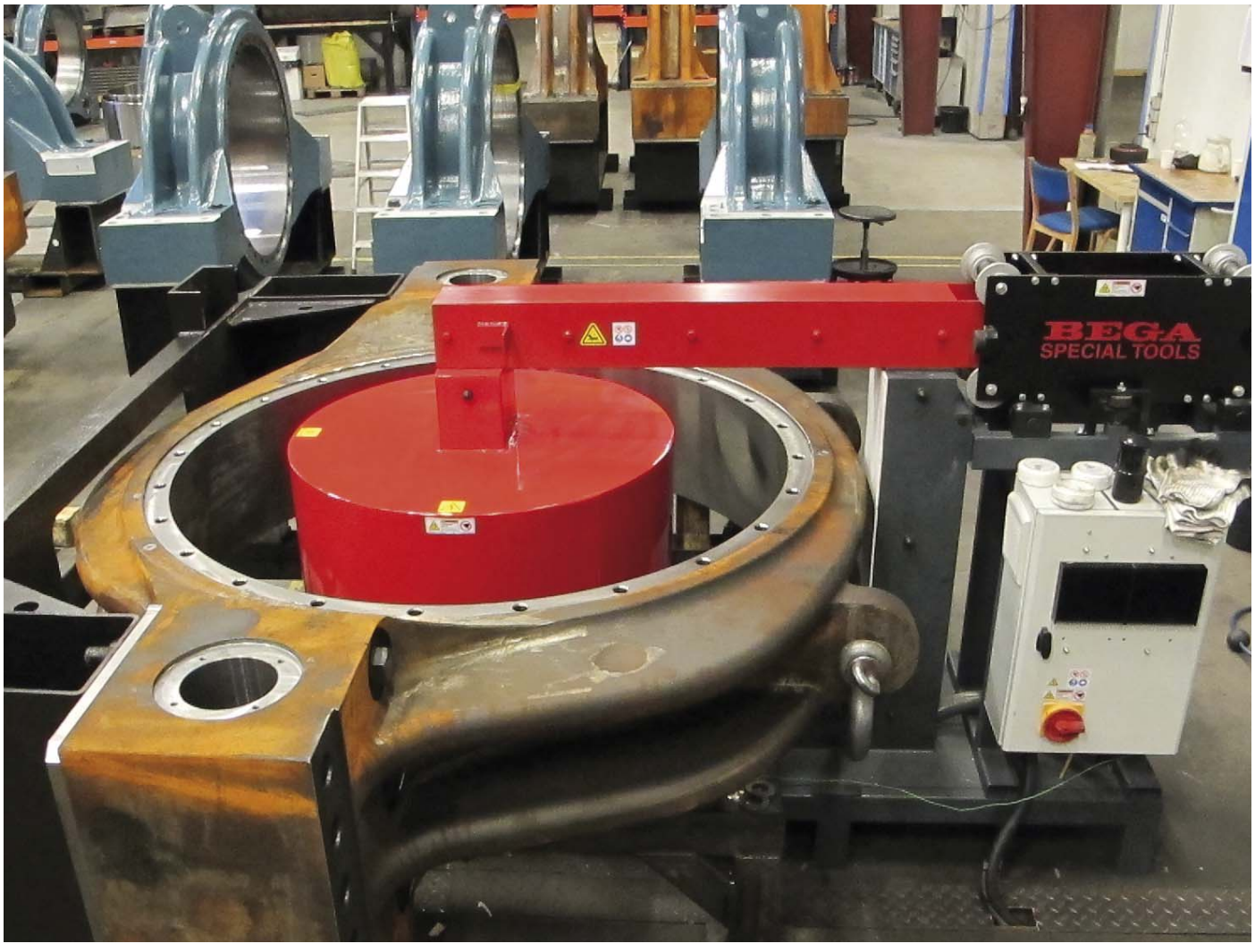
◀ BETEX GIANT XL

Client:	manufacturer of wind turbines
Component:	stainless steel tube
Weight:	1100 kg
Temp.:	270°C
Time:	3 hours

BETEX GIANT ▼

Client:	manufacturer of wind turbines
Component:	(main) bearing
Temp.	120°C
Time:	25 min.

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.

BETEX GIANT DL-700

BETEX GIANT DL-700
References available on request.

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.

Specials - custom-made

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.

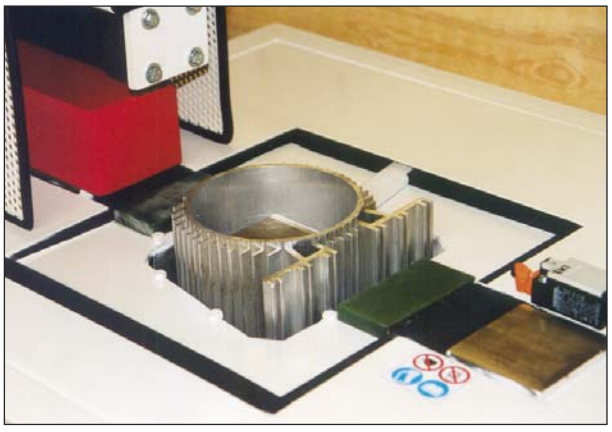
When fast and accurate heating is imperative, these 'Specials' offer surprising solutions. For example, it is possible to integrate them into fully automated production processes, even with a pick-and-place unit if desired. A huge advantage is the use of low frequency (50/60Hz), which costs much less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

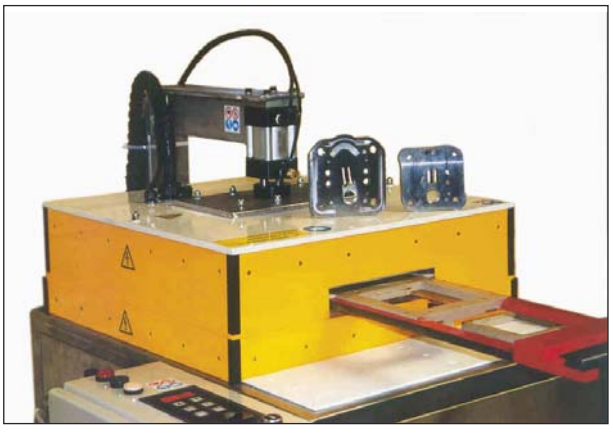
The most important advantages for our customers are:

- 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

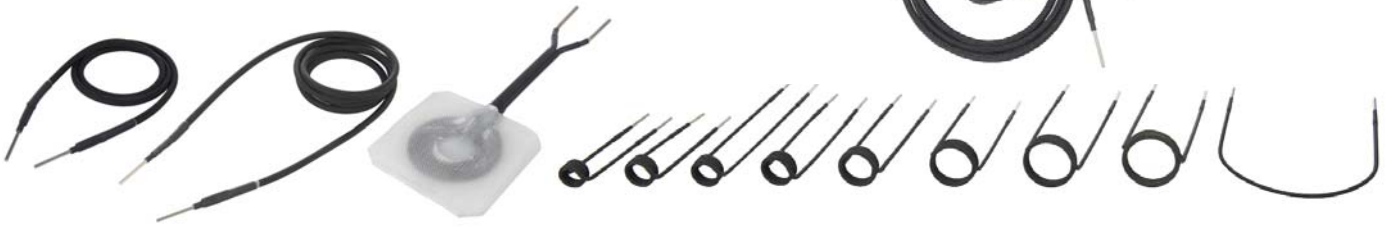




Heating bores in housings
For mounting bearings and pins (including in frames and gearboxes).

TECHNICAL DATA - iDuctor 1, handheld

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



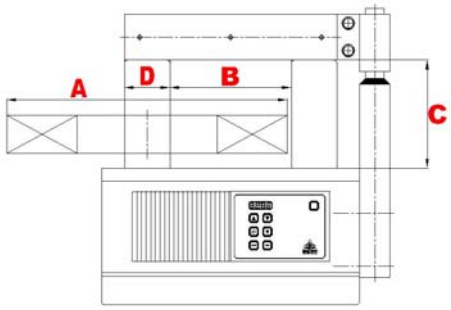
Inductors						
Article	**Article number**	**Conductor thickness mm**	**Internal diameter mm**	**Winding mm**	**Length mm**	**Temperature insulation**
Inductor 1.1 mtr	231202	3,5	-	-	1100	650°C
Inductor 2.0 mtr	231203	3,5	-	-	2000	650°C
IDpad	231205	3,5	-	-	-	250°C
Inductor Set 9 pc.	231204	3,5	*	*	*	250°C
Spareparts * Set 9 pc.						
M30	-	3,5	52	3,5	240	250°C
M24	-	3,5	47	3,5	240	250°C
M20	-	3,5	40	3,5	200	250°C
M16	-	3,5	32	3,5	200	250°C
M12	-	3,5	26	3,5	200	250°C
M10	-	3,5	23	3,5	250	250°C
M10	-	3,5	23	3,5	150	250°C
M08	-	3,5	18	3,5	150	250°C
Ucoil	-	3,5	160	0,5	600	250°C

TECHNICAL DATA - Portable

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

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!

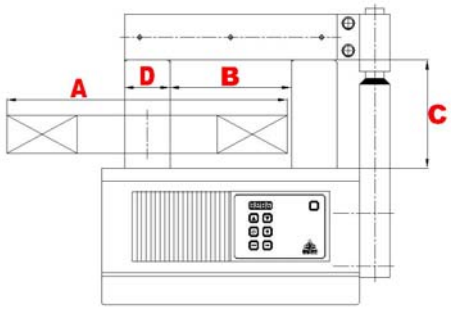


TECHNICAL DATA - Benchtop

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

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

						
38 ZFD	**40 RMD TURBO**	**SUPER Standard en DL-700**	**SUPER TURBO**	**GIANT Standard en DL-700**	**GIANT Standard DL-700/DL-1000**	**GIANT XL TURBO**
12 kVA 400V/30A	12 kVA 400V/30A	24 kVA 400V/60A	24 kVA 400V/60A	40 kVA 400V/100A	48, 100 kVA 400V/120,250A	40, 48, 100kVA 400V/100,120,250A
500V/30A	500V/30A	500V/60A	500V/60A	500V/100A	500V/120,250A	500V/100,120,250A
50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
optional	optional	optional	included	optional	optional	included
20,30,40,60,80	40,60,80	40,50,60,80,100*3	1 yoke	60,80,100,150*3	60,80,100,150,200*3	1 yoke
yes	yes	-	-	-	-	-
300	600	600	1200	1500/2000*3	3000/3500*3	1500/12000*3
200	450	350	900	900/1500*3	1500/2500*3	<12000*3
30/Ø130	60/Ø175	60/85*3	175/Ø200	85*3	85/215*3	115/240*3
720/1080 *1	920	900/1300*3	1700	1400/1700*3	1700/2500*3	1400/2500*3
340	365	400/700*3	750	620/700*3	700/900*3	450/1020*3
290	305 adj. supports 320 fixed supports	390/690*3	600	440/730*3	730/990*3	450/1000*3
80	Ø175	100*3	Ø200	150*3	150/200*3	200*3
340	305	390*3	595	660/740*3	740/1000*3	900*3
240ºC*2	240ºC*2	240/350ºC*2	240/350ºC*2	240/350ºC*2	240/350ºC*2	240/350ºC*2
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
0-99 min.	0-99 min.	0-99 min.	0-99 min.	0-99 min.	0-99 min.	0-99 min.
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes
1200x640x1000	1200x640x1000	1000x500x1350*3	1600x700x1300	1750x600x1470*3	2150x900x2210*3	2350x1000x1875*3
125	205 adj. supports 185 fixed supports	220/320 kg*3	450 kg (incl yoke)	660/800 kg*3	800/1700 kg*3	1800 kg*3
-	-	optional	-	optional	optional	optional
optional	optional	optional	optional	optional	optional	optional
yes	yes	optional	optional	optional	optional	optional

*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

CE TÜVRheinland www.tuv.com TÜV ID:0000006332 CSA C US 261250

TURBO: High output, energy efficient!

TECHNICAL DATA - Middle frequency

		
Type BETEX MF Quick-Heater	**22 kW**	**44 kW**
Cooling	forced air cooling	forced air cooling
Active power	2,5 - 22 kW	2,5 - 44 kW
Frequency	10-20 kHz	10-20 kHz
Mains voltage	3x 400V / 50 Hz	3x 400V / 50 Hz
Connection (plug)	32A	63A
Main fuse	32A	63A
Temperature measurement	for type K thermo couple	for type K thermo couple
Inductor recognition	yes	yes
Temperature sensor	yes, for max max 300°C	yes, for max max 300°C
Dimensions generator LxBxH	553 x 500 x 700 mm	640 x 1050 x 1856 mm
Weight incl trolley	135 kg	185 kg
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		
Type m¹ / °C	**Diameter cable**	**Min. winding diameter**
15/20/25/30m¹/180°C	Ø 12 mm	ca. 75 mm
15/20/25/30m¹/180°C	Ø 15 mm	ca. 100 mm
15/20/25/30m¹/300°C	Ø 20 mm	ca. 120 mm

Min. winding diameter flexible inductors 44 kW		
Type m¹ / °C	**Diameter cable**	**Min. winding diameter**
15/20/25/30m¹/180°C	Ø 19 mm	ca. 140 mm
15/20/25/30m¹/300°C	Ø 28 mm	ca. 220 mm

OTHER BEGA SPECIAL TOOLS: