

## INDUCTION HEATERS FOR MOUNTING & DISMOUNTING

### BETEX MF QUICK-HEATERS - MIDDLE FREQUENCY TECHNOLOGY

For mounting & dismantling of bearings, labyrinth rings, bearing inner rings, bearing rings, 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 work piece. The MF Quick-Heater is compact and mobile so it's easier for you move around.

This system is also clean and operates very quietly. The MF Quick-Heater 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. Each heater is customised to your needs and supplied with required size(s) of inductors.



#### BENEFITS OF BETEX MIDDLE FREQUENCY INDUCTION HEATERS

- ✓ **Economic:** One device for mounting and dismantling.
- ✓ **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 adjusted if necessary. 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 fixed inductor is connected to the generator for a second time, the correct settings are selected automatically. Simply press the START button to get the job done.
- ✓ **Air-cooled:** No need for unreliable water cooling.
- ✓ Automatic demagnetisation

## INDUCTION HEATERS FOR MOUNTING & DISMOUNTING

### BETEX MF QUICK-HEATERS - MIDDLE FREQUENCY TECHNOLOGY

✓ *The smart, eco-friendly way of heating*

Middle frequency induction heating is a superior, fast and controlled heating method. It prevents unnecessary damage to parts and reduces wear and tear.

#### 1. Steel industry

Couplings were removed using a 22 kW generator and a flexible inductor. 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!

#### 2. Rail/Metro industry

Easy disassembly of inner rings, NU-NJ bearings, labyrinth rings. Perfectly even heating results in a safe, fast and clean job.

#### 3. Machine building, gear & drive systems

Flexible inductors are used to heat the bore of this large cable pulley so the bearing can be installed properly.

#### 4. 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 getting the job done etc. The customer can now do the job on location with their own MF Quick-Heater and is rapidly earning back the investment.



1.



2.

### MOUNTING & DISMOUNTING

- Bearings
- Labyrinth rings
- Bearing inner rings
- Bearing rings
- Bearing housings
- Rollers
- Pipes
- Train wheels / rims
- Bushes
- Couplings



Flexible inductors may be used IN or AROUND a part.



3.



4.

Find more application examples on [www.begaspecialtools.com/industries](http://www.begaspecialtools.com/industries)

## INDUCTION HEATERS FOR MOUNTING & DISMOUNTING

BETEX MF QUICK-HEATERS, MIDDLE FREQUENCY TECHNOLOGY - 22 kW, 44 kW

### MF Quick-Heaters 3.0

- Compact design with large 7" display
- Heats according to preset temperature/time curve
- Shows temperature development in chart form
- Option of logging the heating cycle
- USB connection for software upgrading
- Login option for remote servicing
- Smart electronics ensure optimal operating frequency
- Adjustable power control
- Advises user on optimal heating (more/fewer windings)
- Dual temperature sensing (monitoring  $\Delta T$ )
- Option to operate several heaters together



✓ *NEW GENERATION 3.0 !*

### Testing

For special applications, we carry out tests in advance with components that you make available to us. And we supply custom jobs where needed.

For standard applications, we have a large database with examples of different applications. But we also use simulation programs.

We supply optimal solutions to you so you can enjoy major savings. Measurable savings are realised not just by avoiding any damage to the job in the first place, but also by making it possible to reuse those components!



**Request our product questionnaire for sound advice and quotations**

## INDUCTION HEATERS FOR MOUNTING & DISMOUNTING

BETEX MF QUICK-HEATERS, MIDDLE FREQUENCY TECHNOLOGY - 22 kW, 44 kW



**Fixed Inductors** are used in serial work.

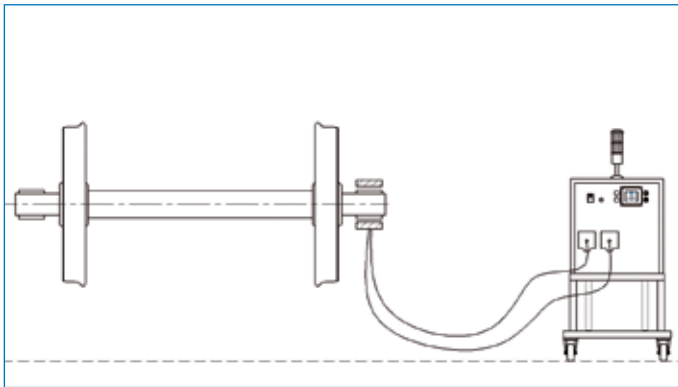
**Flexible Inductors** have multifunctional applications. Ideal when working with different designs or sizes.



- For mounting, dismounting and preheating
- Controlled heating
- Low connection power (32/63 Amp)
- Generators 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



## MIDDLE FREQUENCY HEATING METHODS

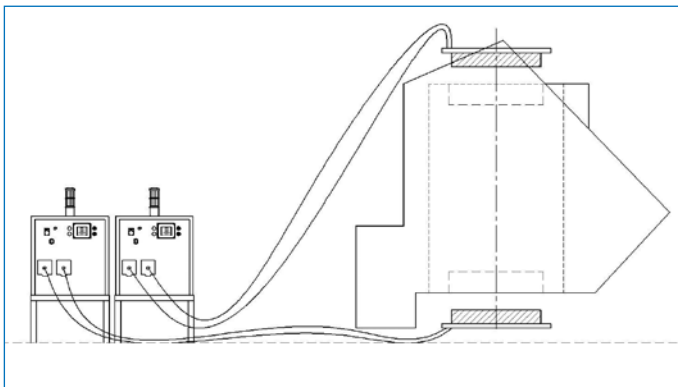


### Method 1

- Fixed inductor

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

For bearing rings, pipes and rings.

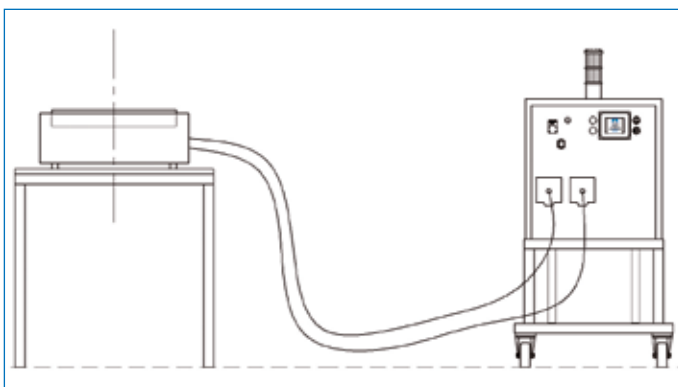


### Method 2

- Fixed inductor

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

For example, bored holes for gearboxes or bearing bores in housings/frames.

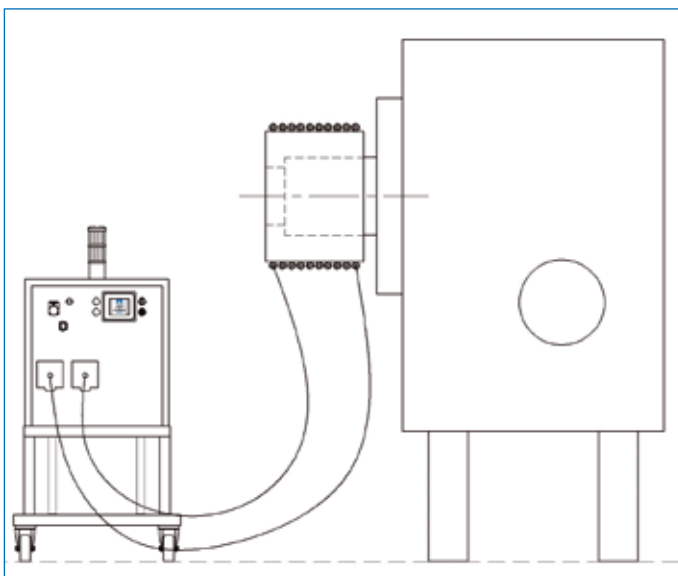


### Method 3

- Table inductor

The part is lying flat on an inductor table and is heated in a very short time to the 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 42*





**WIND**



**MRO**



**POWER PLANTS**



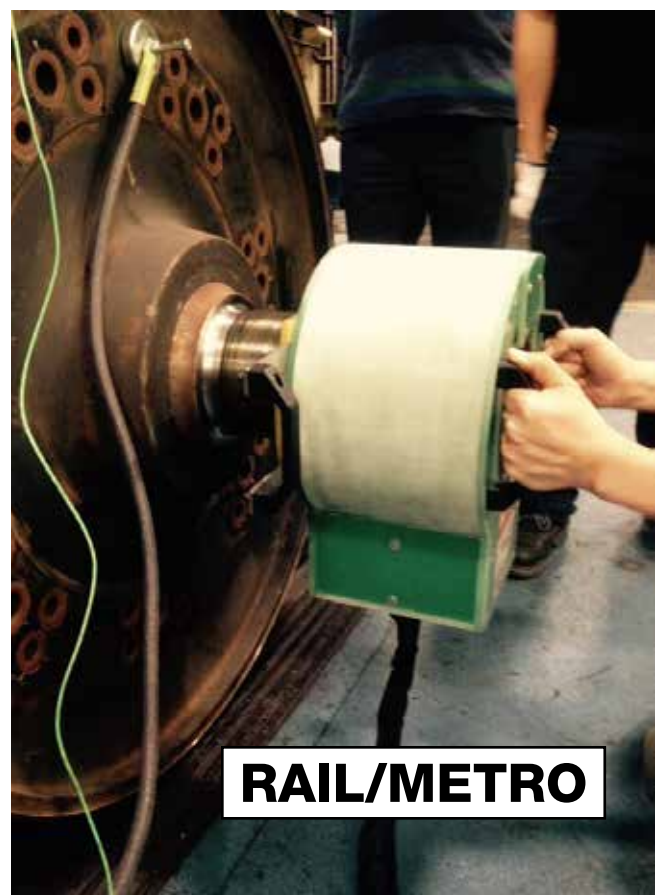
**MACHINE BUILDING**



**PAPER/PRINTING**



**MACHINE BUILDING**



## TECHNICAL DETAILS - Middle frequency



Type BETEX MF Quick-Heater	MF Quick-heater 2.0, 22 kW	MF Quick-heater 2.0, 44 kW
Forced air cooling	yes	yes
Power	22kW	44kW
Frequency reach	10-20 kHz	10-20kHz
Voltage/Amperage	3 ~ 400V/32A	3 ~ 400V/63A
Voltage/Amperage	3 ~ 500V/28A	3 ~ 500V/55A
Voltage/Amperage	3 ~ 600V/23A	3 ~ 600V/45A
Frequency	50/60Hz	50/60Hz
Temperature measurement	for type K thermocouple	for type K thermocouple
Accuracy	± 3.5°C	± 3.5°C
Inductor recognition	yes	yes
Temperature sensor	yes, for max 300°C	yes, for max 300°C
Extra thermocouple input	optional	optional
Generator dimensions LxWxH	630 x 553 x 800 mm	640 x 553 x 1.400 mm
Weight	75 kg	130 kg
Trolley dimensions: LxWxH	1.050 x 640 x 980 mm	1.050 x 640 x 980 mm
Weight	60 kg	50 kg
<b>Operation:</b>		
Dimensions display	3,5"	3,5"
Heat curve in display	no	no
Setpoint power	via touchscreen	via touchscreen
Setpoint temperature	via touchscreen	via touchscreen
Setpoint temperature curve	no	no
Setpoint timer	via touchscreen	via touchscreen
Selection operating 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
USB connection	no	no
Network connection	no	no
<b>Signaling by:</b>		
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	acoustic signal	acoustic signal

Min. winding diameter flexible inductors 22kW		
Type m / °C	Diameter cable	Min. winding diameter
15/20/25/30m/180°C	Ø 12 mm	ca. 75 mm
15/20/25/30m/180°C	Ø 15 mm	ca. 100 mm
15/20/25/30m/300°C	Ø 20 mm	ca. 120 mm

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





Type BETEX MF Quick-Heater	MF Quick-heater 3.0, 22 kW	MF Quick-heater 3.0, 44 kW
Forced air cooling	yes	yes
Power	22kW	44kW
Frequency reach	10-25 kHz	10-25 kHz
Voltage/Amperage	3 ~ 400V/32A	3 ~ 400V/63A
Voltage/Amperage	3 ~ 500V/28A	3 ~ 500V/55A
Voltage/Amperage	3 ~ 600V/23A	3 ~ 600V/45A
Frequency	50/60Hz	50/60Hz
Temperature measurement	for type K thermocouple	for type K thermocouple
Accuracy	± 3.5°C	± 3.5°C
Inductor recognition	yes	yes
Temperature sensor	yes, for max 300°C	yes, for max 300°C
Extra thermocouple input	optional	optional
Generator LxWxH	600 x 300 x 600 mm	600 x 650 x 580 mm
Weight	–	–
Trolley LxWxH	–	–
Weight	–	–
<b>Operation:</b>		
Dimensions display	7"	7"
Heat curve in display	yes	yes
Setpoint power	via touchscreen	via touchscreen
Setpoint temperature	via touchscreen	via touchscreen
Setpoint temperature curve	yes	yes
Setpoint timer	via touchscreen	via touchscreen
Selection operating 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
USB connection	yes	yes
Network connection	yes	yes
<b>Signaling by:</b>		
Ready message	optional	optional
Installation in operational state	optional	optional
Error message	optional	optional
End of heating cycle	acoustic signal	acoustic signal

