



WEITERUI
维特瑞

WTR Middle Frequency Induction Heater

Thrust Collar Dismounting

Technical Solution

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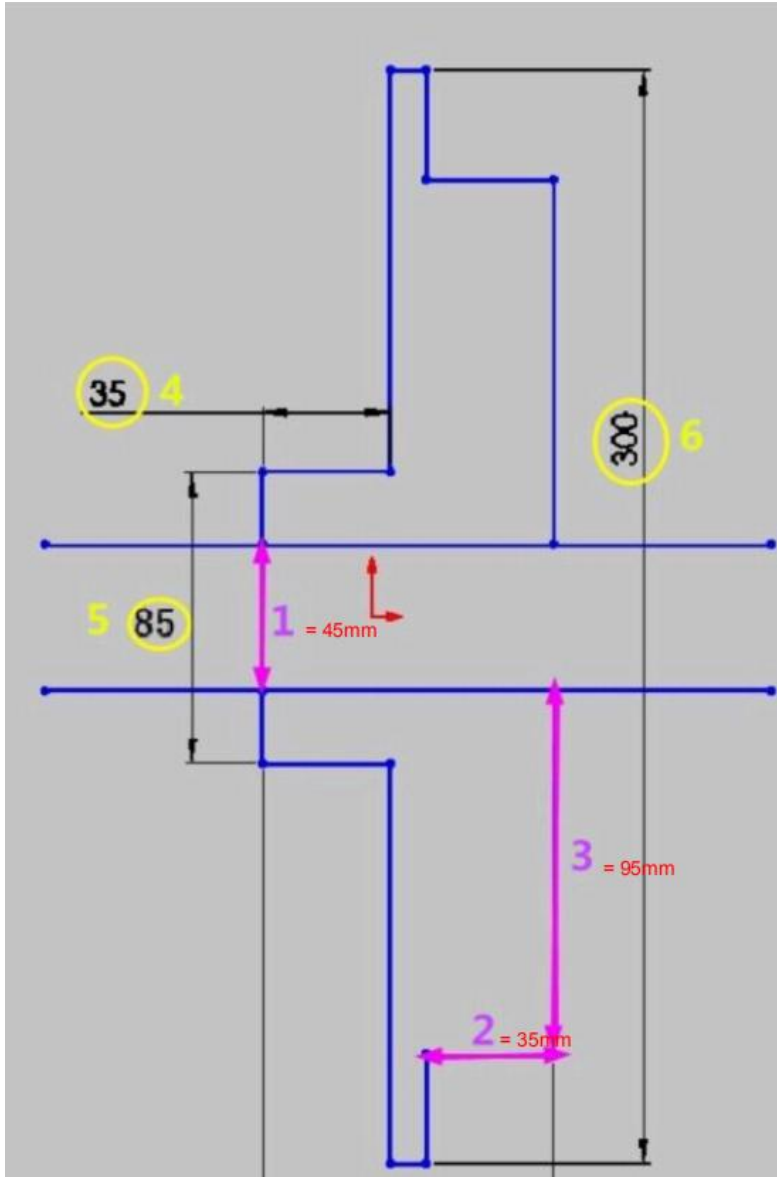


1. Customer Need

1.1 Workpiece type: carbon steel material thrust collar

1.2 Heating requirement: dismounting

1.3 Workpiece info



2. WTR Induction Heater Solution

2.1 It is initially determined to use 40kW induction heating power supply according to the customer's size and technical requirements calculated by WTR engineers. The outer wall of the workpiece is wound by a silicone rubber induction cable for



induction heating, and the temperature of the inner wall of the workpiece is detected by a thermocouple.

2.2 WTR-MF middle frequency induction heater consists of the heating power, silicone rubber induction cable, insulation blanket and thermocouple. The equipment reference picture is as follows.



2.3 WTR-MF Middle Frequency Induction Heater Configuration

NO.	Model	Brand	Qty	Remarks
1	WTR-MF40/380 heating power	WTR	1set	Two-point temperature control type
2	120mm ² induction cable/10m	WTR	1pc	
3	K type thermocouple (8m)	WTR	1pc	0-500degree
4	Insulation blanket	WTR	1pc	1050x50x10mm
5	Insulation blanket	WTR	1pc	310x50x10mm
6	Extension induction cable	WTR	1pc	6x35 mm ² /5M



2.4 WTR-MF40/380 heating power technical data

Input	
Input voltage	AC380V,3Phase
Input voltage allowable fluctuation range	+10% , -10%
Rated input current	72A
Output	
Rated output power	40KW
Output Power	1%-100% (Adjustable)
Output frequency mode	Automatic tracking
Other	
Resonant frequency mode	Automatic tracking
Control accuracy	1%
Effectiveness	≥95%, Including output isolation transformer
Power factor	≥0.90
Overload capability	1.10
Cabinet protection level	IP20
Continuous work	7x24h
Cooling method	IGBT, Air cooling

3. WTR-MF middle frequency induction heater features

3.1 WTR-MF series induction heating power supply is a high-efficiency energy-saving product of **DSP+IGBT** structure; this product is IGBT inverter and adopts DSP for all-digital precision control. It can always ensure IGBT works in **ZCS** state; full air cooling structure greatly reduces power loss and completely eliminates equipment failure from water system; multiple operation control modes and



configurable functions make the equipment suitable for almost all process requirements of induction heating; Complete limit protection measures keep the equipment running continuously and safely under various working conditions.

3.2 The power supply is **fully air-cooled** and equipped with **air-cooled sensors**. It is safe and reliable and supports **7x24h** operation.

3.3 The output of the device is a high-isolation transformer isolation type, which conforms to **European and American standards**.

3.4 Four operating modes: constant current operation, constant power operation, constant temperature operation, process program operation (temperature operation module and process program module are optional). Can be selected according to different working conditions and process requirements.

3.5 Timed running function: automatic countdown with countdown and positive timing function.

3.6 Built-in temperature PID closed-loop program (optional), PID parameters can be set; in many cases, the **constant temperature operation mode** can be used to automatically control the heating temperature of the workpiece (automatically heat up according to a certain slope, and then keep the temperature at the set value).

3.7 The process run module (optional) allows the user to preset temperature profiles (or current, power curves) to complete complex heat treatment processes or heating process requirements. The preset process curve can be completed by panel button operation. Each process program can be programmed with dozens of running



segments, each of which can be timed and programmable to different operating modes.

3.8 Automatic closed-loop operation controlled by **DSP**: Even if the load changes, the device can always **keep the output stable**; when inputting three-phase AC voltage fluctuations, the DSP can automatically control to keep the output stable.

3.9 Quick response options (parameters): Extremely fast instantaneous heating, such as quenching applications with a heating time of less than 1 s. It can realize fast PID constant temperature control, such as heating and heat preservation operation in 2S.

3.10 Impedance automatic switching function (optional): It can automatically switch the impedance before and after the Curie point to keep the power supply always output at high power. With this function, it is possible to select a power source with a lower power to achieve a Curie temperature point heating.

3.11 The **efficiency of the device is $\geq 75\%$** , and the power factor is ≥ 0.90 (the ratio of the output power of the transformer box to the input power when the output is $\geq 50\%$ of rated power). Most magnetically conductive metal-heated power supplies can exceed 75% efficiency.

3.12 The equipment grounding system is safe and reliable (including equipment access lines, the buyer provides a reliable grounding point in the power distribution cabinet and is reliably grounded). The device has complete security protection. It has an abnormal sound and light alarm such as load open circuit, short circuit, resonant over current, DC over voltage, resonant over voltage, over temperature, phase loss,



cell balance, and reactance over limit protection function, and cuts off the output function.

Alarm and protection event recording and viewing functions: The device will record all alarms and protection events that occur during operation, which can be viewed by the operator at any time, facilitating equipment troubleshooting and problem analysis.

3.13 Heating cable insulation grade: **Class F**.

Built-in output circuit (including sensor / induction cable, extension cable / copper bar) insulation resistance online monitoring function (ie leakage detection function), can display insulation resistance value, can set insulation resistance alarm / protection value.

3.14 Alarm and protection event logging and viewing functions: The unit will record all alarms and protection events that occur during operation, which can be viewed by the operator at any time, which is very useful for equipment troubleshooting and problem analysis.

3.15 All parameters of the device can be set online and enabled in real time. After the parameter is set, the power is not lost. It has parameter protection and one-button recovery factory setting parameter function.

3.16 Automatic demagnetization function: It meets international standards and has National Demagnetization Testing Certification.