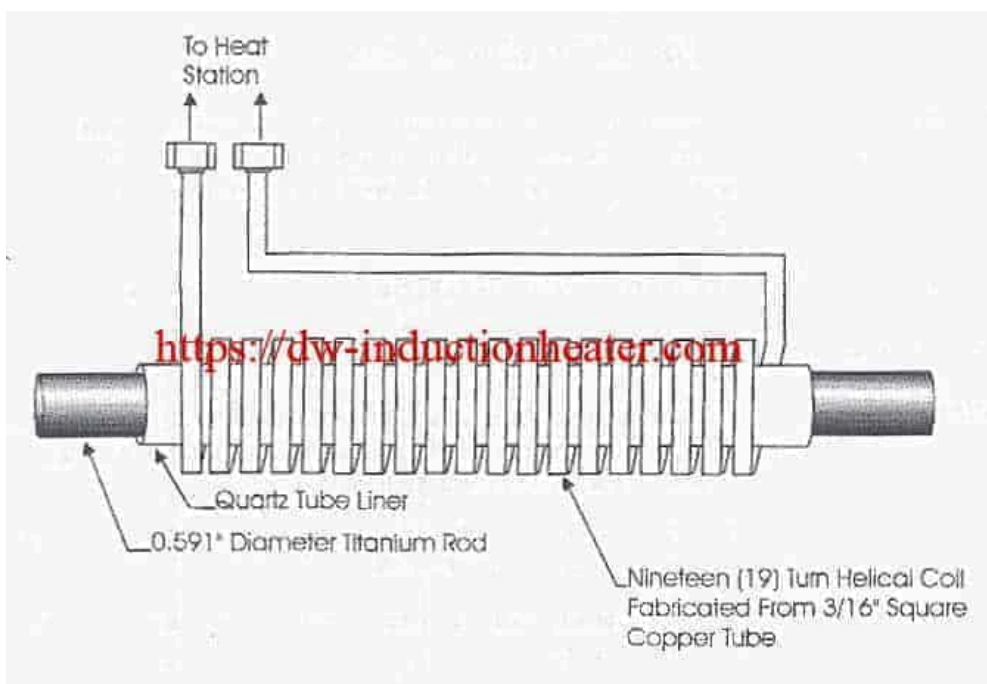


Induction Forging Titanium Rods

Titanium rod blanks, 0.591" (15.01 mm) OD × 11.8" (299.7 mm) long, heated to 2030 °F (1110 °C) in 25 seconds in a nineteen-turn helical coil before forging into a turbine blade.



2030 °F

(1110 °C)

25 s

heating time

13 kHz

DW-MF-25kW

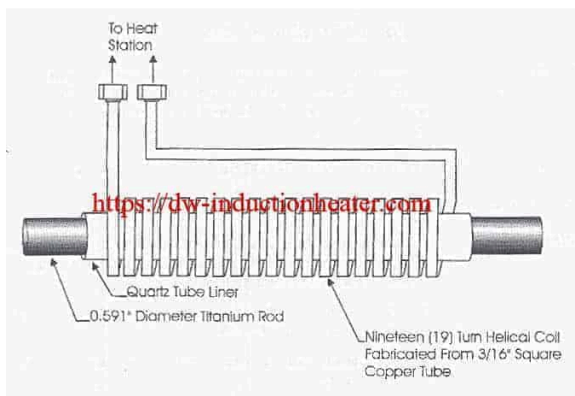
19 turns

helical coil

01 The HLQ titanium rod blank case

Objective: heat titanium rod blanks prior to forging into a turbine blade.

Item	Case data
Material	Titanium rod blanks, 0.591" (15.01 mm) OD × 11.8" (299.7 mm) long
Temperature	2030 °F (1110 °C)
Frequency	13 kHz
Equipment	DW-MF-25kW induction heating system with a remote workhead of eight capacitors totaling 0.66 μF
Coil	Nineteen-turn helical coil, designed for this application; 3/16" square copper tube with quartz tube liner (case drawing)
Heating time	25 seconds
Benefits	Increased production rates; repeatable, reliable and consistent heat without flame; hands-free heating that involves no operator skill



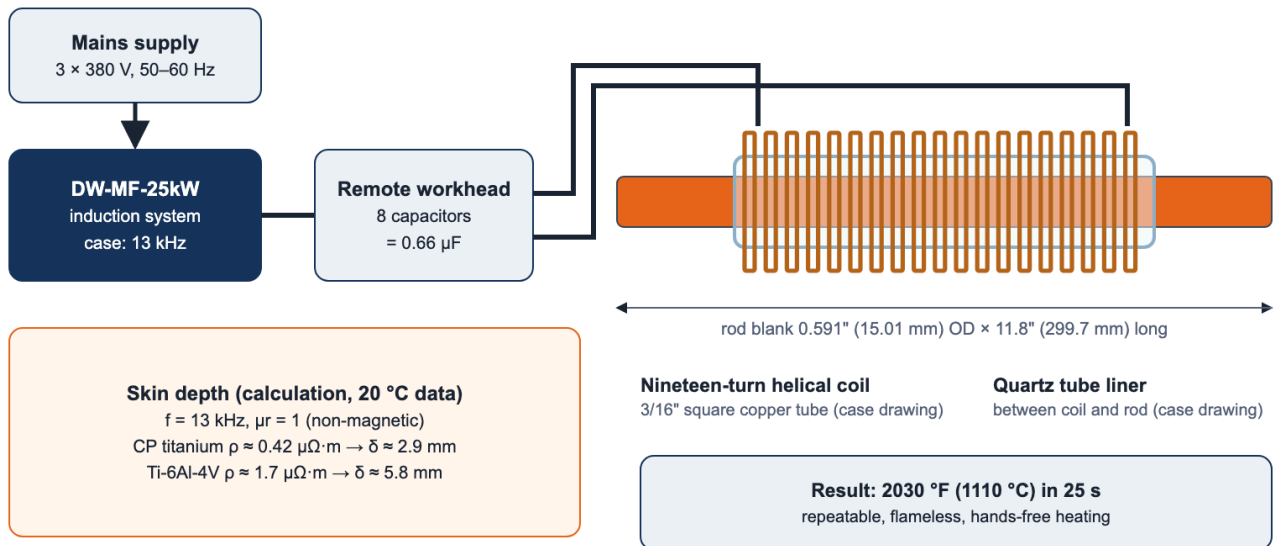
Case drawing (19-turn coil, quartz tube liner, Ø0.591" rod) and titanium rods (original HLQ images).

02 How it works

Induction Forging Titanium Rod Blanks – Working Principle

HLQ

A nineteen-turn helical coil heats Ø15 × 300 mm titanium rod blanks to 2030 °F (1110 °C) in 25 s before forging into a turbine blade.

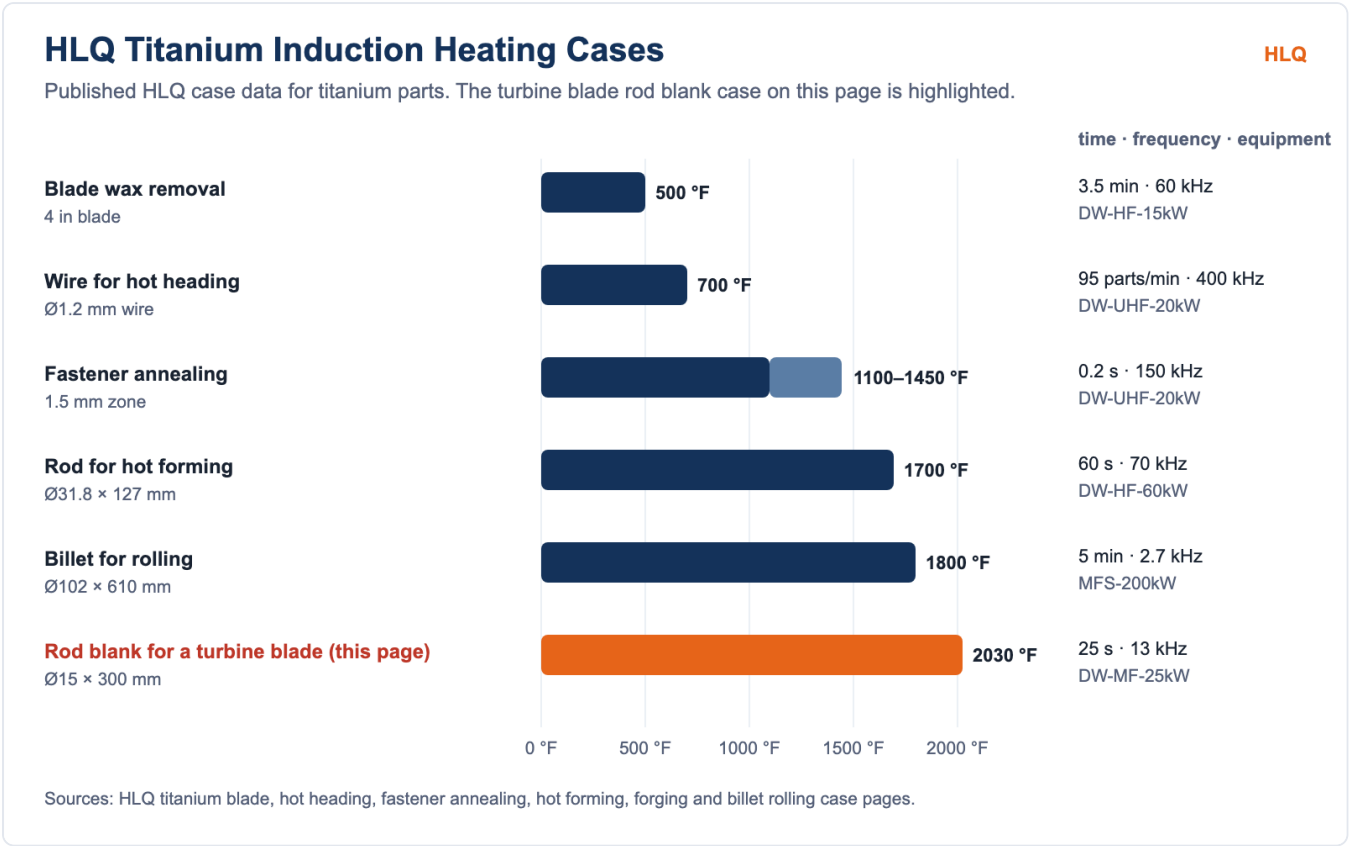


Rod diameter / $\delta \approx 5.3$ (CP titanium) or ≈ 2.6 (Ti-6Al-4V) at 13 kHz (calculation).

Schematic side view based on the HLQ case drawing; not to scale. Coil turns simplified.

Titanium is non-magnetic; at 13 kHz the calculated skin depth is about 2.9 mm (commercially pure titanium) or 5.8 mm (Ti-6Al-4V) at 20 °C, against a 15.01 mm rod diameter. The long nineteen-turn coil covers the blank and brings it to 2030 °F in 25 seconds.

03 HLQ titanium cases

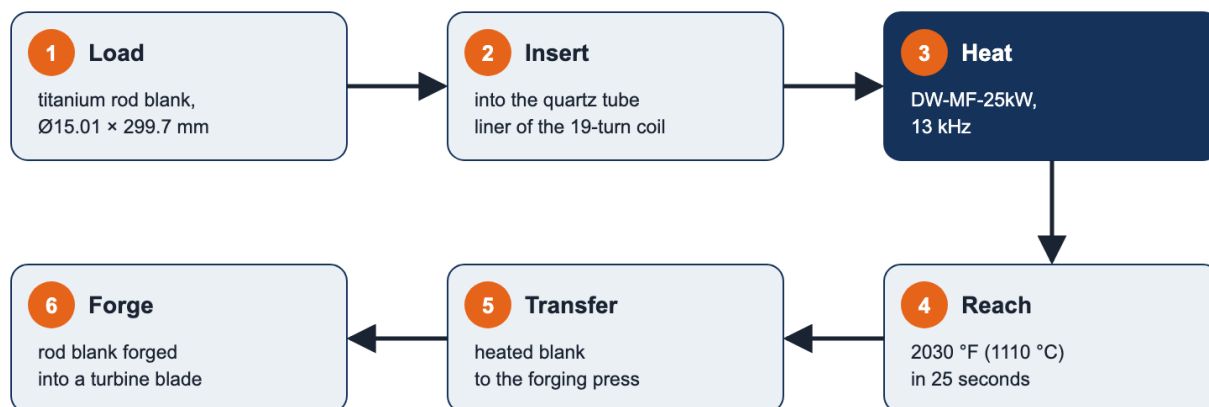


04 Process workflow and station layout

Titanium Rod Blank Forging – Process Workflow

HLQ

Sequence from the HLQ titanium rod blank case (DW-MF-25kW, 13 kHz, nineteen-turn helical coil).



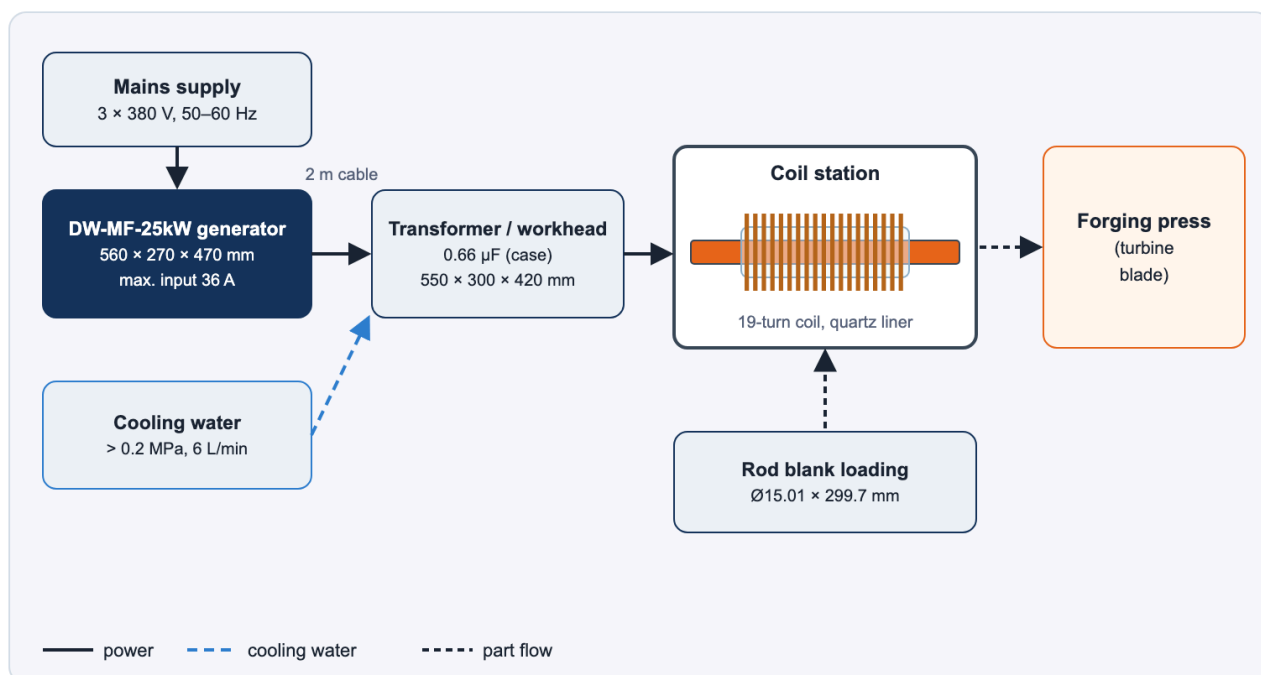
Control points and calculation

- Same coil and 25 s cycle: repeatable, reliable and consistent heat without flame
- Hands-free heating that involves no operator skill
- Average heating rate (20 → 1110 °C in 25 s) ≈ 44 °C/s (calculation)

Titanium Rod Blank Heating Station – Typical Layout

HLQ

Schematic, not to scale. DW-MF-25kW generator, transformer / workhead, 19-turn coil with quartz liner, and transfer to the forging press.



05 DW-MF-25kW specifications

Parameter	DW-MF-25kW (product page)
Input power supply	3 phase 380 V, 50/60 Hz
Oscillating power max.	25 kW
Max. input current	36 A
Oscillating frequency	1–20 kHz
Duty cycle	100% at 40 °C
Cooling water	> 0.2 MPa, 6 L/min
Generator / transformer	560 × 270 × 470 mm / 550 × 300 × 420 mm
Net weight / cable length	30 kg / 35 kg; 2 m

Titanium jobs and power supplies (HLQ cases)

Titanium job	Power supply	Frequency
Ø15 mm rod blanks for forging	DW-MF-25kW	13 kHz
Ø31.8 mm rod for hot forming	DW-HF-60kW	70 kHz
Ø102 mm billet for rolling	MFS-200kW	2.7 kHz

06 Frequently asked questions

What was heated?

Titanium rod blanks, 0.591" (15.01 mm) OD × 11.8" (299.7 mm) long, before forging into a turbine blade.

What temperature and time?

2030 °F (1110 °C) in 25 seconds.

Which equipment and frequency?

A DW-MF-25kW medium frequency system with a remote workhead, at 13 kHz.

Which coil?

A nineteen-turn helical coil designed for the application; the drawing shows 3/16" square copper tube and a quartz tube liner.

What are the benefits?

Increased production, repeatable heat without flame, and hands-free heating needing no operator skill.

Can titanium be heated by induction?

Yes – it is non-magnetic but conductive, so eddy currents heat it directly.

What do I send for a quote?

Titanium grade, blank size, forging temperature, cycle time and output.

Why choose HLQ

25 s heating

2030 °F for forging.

No flame

Repeatable, reliable heat.

Hands-free

No operator skill needed.

Custom coils

19-turn helical design.

Titanium experience

Six published cases.

Full range

DW-MF, DW-HF, DW-UHF series.

Request a titanium forging heater proposal

Send us the titanium grade, blank size, forging temperature and output. We will propose the coil and power supply.

Email

sales@dw-inductionheater.com

Tel / WhatsApp / Telegram

+86 131 5596 5571

Website

dw-inductionheater.com

Factory address

Jiangbei Village, Wusha Area, Chang'an Town,
Dongguan City, Guangdong Province, China
523859

Please include in your inquiry

- Titanium grade
- Blank diameter and length
- Forging temperature and cycle time
- Parts per hour
- Available supply and cooling water