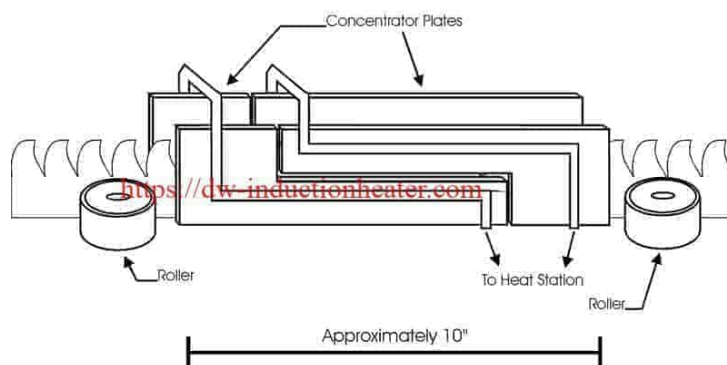


Induction Heat Treatment of Steel Band Saw Blades

A channel coil draws back hardened band saw blades to HRC 50–52 at 60 inches per minute, with teeth and back within ½–1 point — measured mean 50.3 HRC.



HRC 50.3

mean of 15 teeth

60 in/min

continuous feed

700 °F

(371 °C) tempering

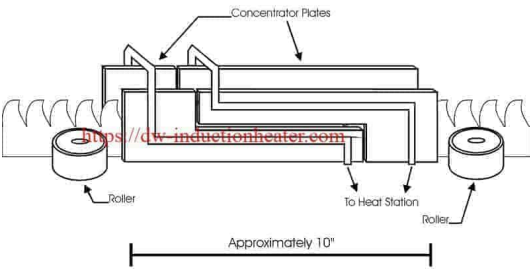
100 kHz

DW-UHF-10kW

01 The HLQ band saw blade case

Objective: use induction heating to draw back steel saw blades to a Rockwell hardness of 50–52, with the hardness within ½ to 1 point between the teeth and the back of the blade, at 60 inches per minute.

Item	Case data
Material	Steel band saw blade, 2.125" (54.0 mm) wide, 0.042" (1.07 mm) thick
Temperature	700 °F (371 °C)
Frequency	100 kHz
Equipment	DW-UHF-10kW solid-state power supply with a step-down transformer and a remote heat station (three busses, eight capacitors)
Coil	Water-cooled channel coil with single and double turns, concentrator plates
Process	Heat pattern from the channel coil; step-down transformer reduces the voltage; 60 in/min met with the coil and a designed fixture
Result	Mean hardness 50.3 HRC on fifteen saw teeth (Wilson superficial hardness tester); customer goal fulfilled



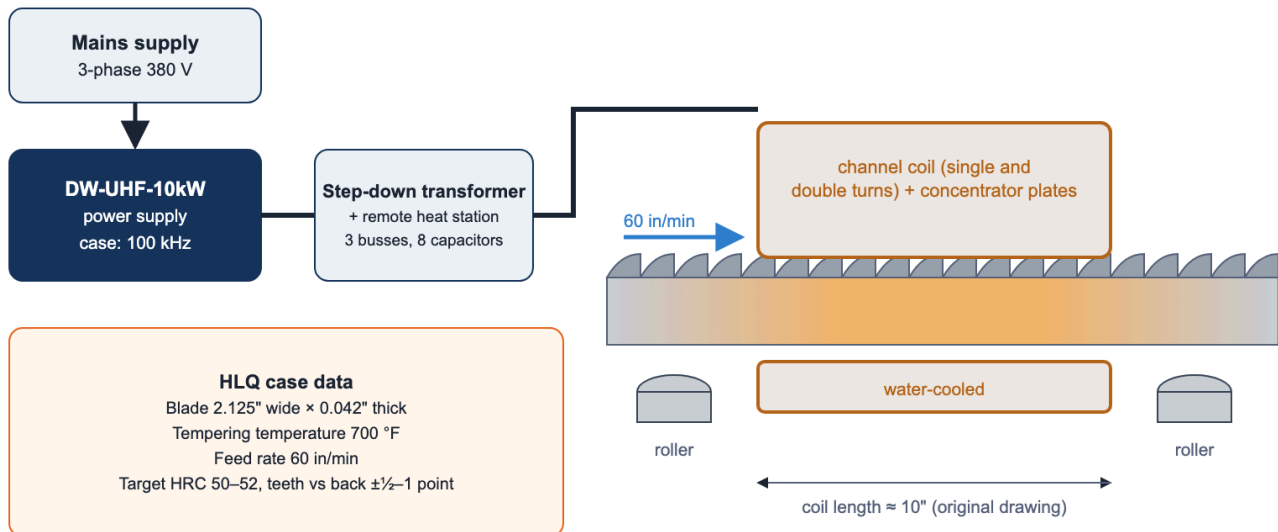
Channel coil with concentrator plates and rollers (original HLQ drawing).

02 How it works

Induction Tempering (Drawing Back) Steel Band Saw Blades

HLQ

A channel coil with concentrator plates heats the moving blade to 700 °F (371 °C) at 60 in/min.



"Draw back" = tempering a hardened blade down to the target hardness. Dwell in a ≈ 10" coil at 60 in/min ≈ 10 s (calculation).

Schematic based on the original HLQ coil drawing; not to scale.

Conversion / calculation	Value
60 in/min	≈ 1.52 m/min ≈ 25.4 mm/s
Dwell in a ≈ 10" coil at 60 in/min	≈ 10 s
700 °F	≈ 371 °C

03 Hardness result

Application Case – Band Saw Blade Hardness Result

Customer target HRC 50–52; measured mean 50.3 HRC on fifteen saw teeth (Wilson superficial hardness tester).

mean 50.3 HRC
15 teeth measured

target

Rockwell C hardness (HRC)

Uniformity: teeth vs back within ½–1 HRC point.

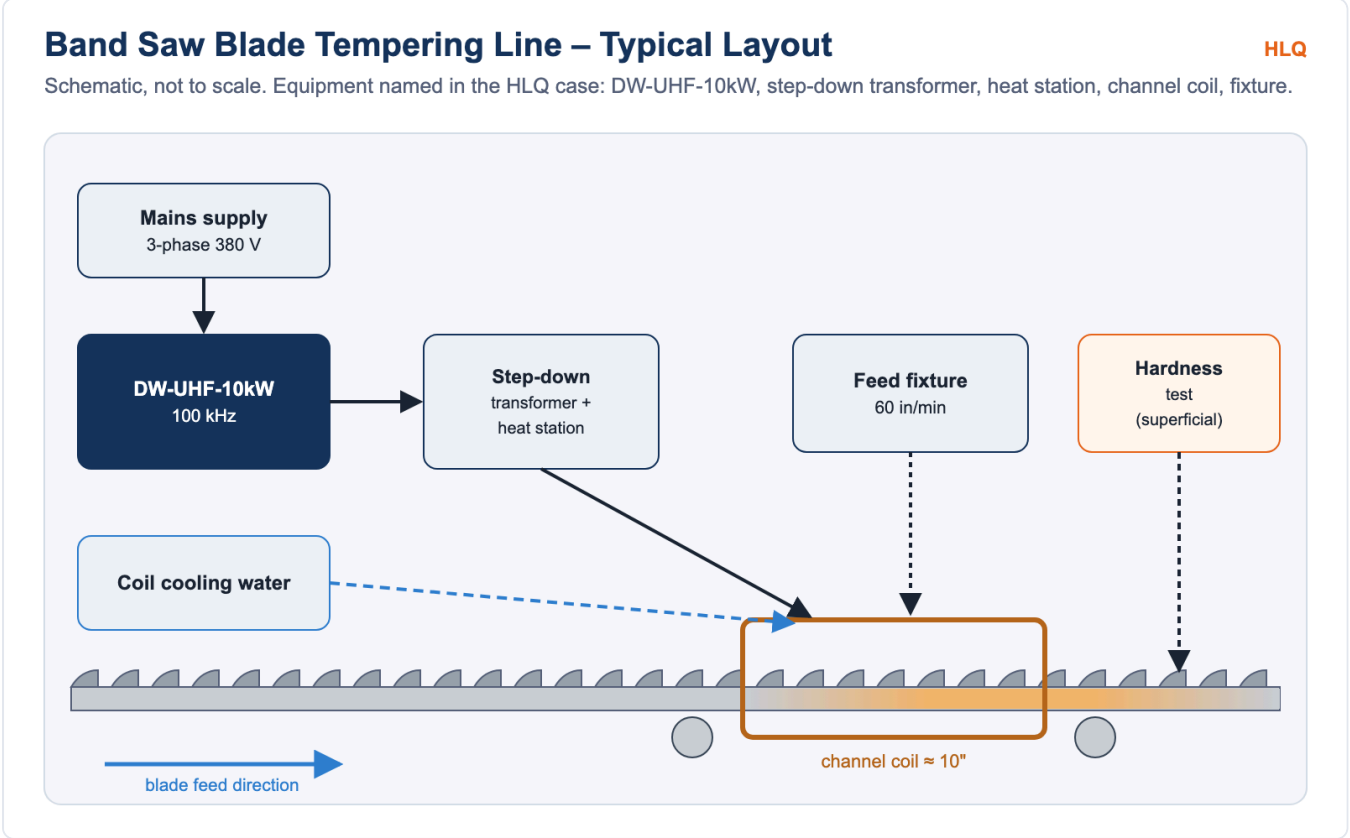
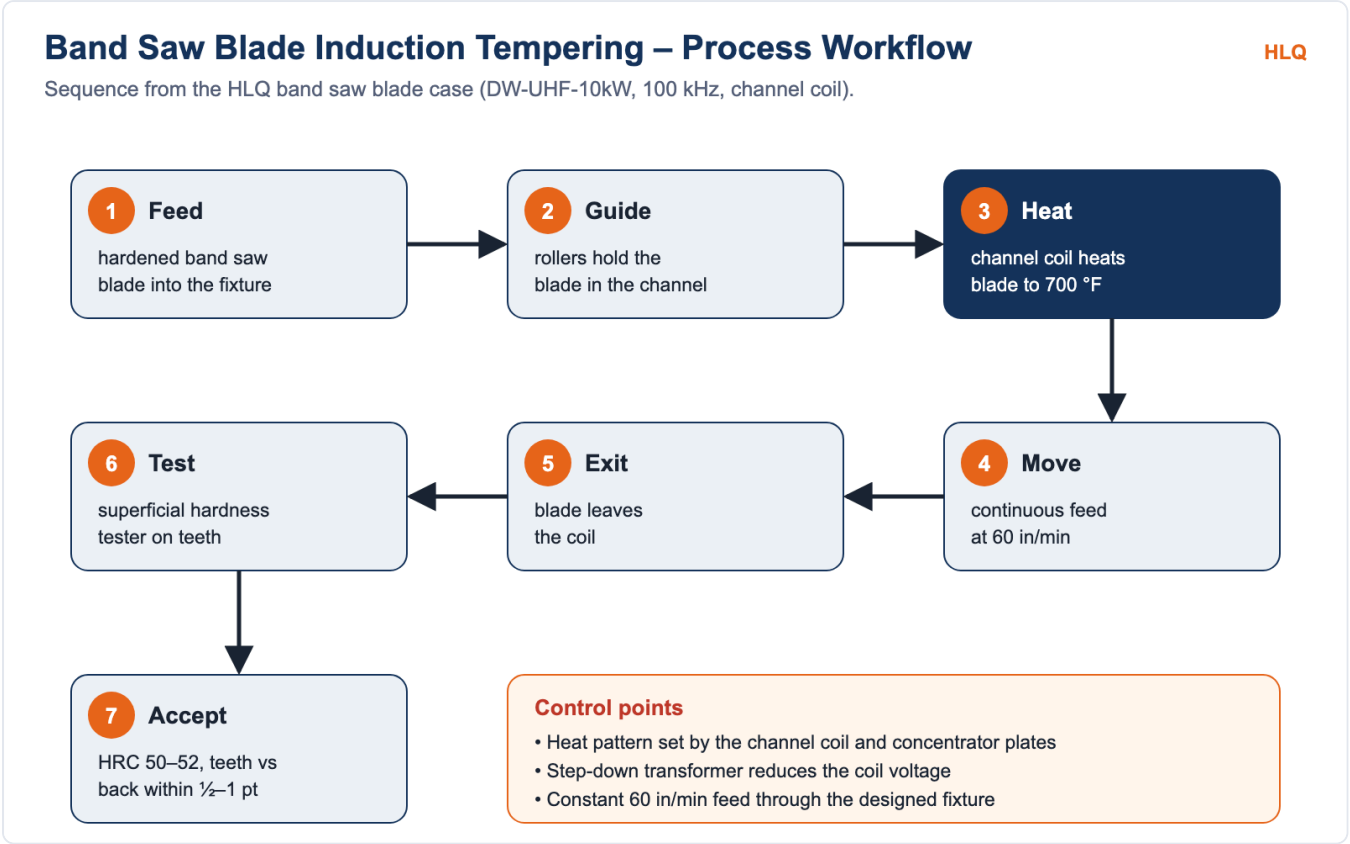
HLQ case data

Blade	steel band saw blade
Width	2.125" (54.0 mm)
Thickness	0.042" (1.07 mm)
Temperature	700 °F (371 °C)
Feed rate	60 in/min (25.4 mm/s)
Frequency	100 kHz
Equipment	DW-UHF-10kW
Coil	channel, single + double turn
Fixture	rollers, designed for blade

Result: the customer’s hardness goal was fulfilled at the required 60 in/min feed rate.

°C and metric values converted from the original inch/°F data.

04 Process workflow and line layout



05 DW-UHF-10kW and the DW-UHF series

DW-UHF-10KW (published data)	Value
Rated output	10 kW
Frequency options	50–300 kHz or 100–500 kHz
Input	380 V $\pm$ 10 %, three-phase, 50/60 Hz
Duty cycle	100 % (with specified cooling)
Main unit	570 × 260 × 500 mm, approx. 30 kg

DW-UHF models (100 % duty)

Model	Power	Frequency	Supply
DW-UHF-4.5KW	4.5 kW	1.1–2.0 MHz	1-ph 220 V
DW-UHF-6.0KW	6.0 kW	300–1100 kHz	1-ph 220 V
DW-UHF-10KW	10 kW	100–500 kHz	3-ph 380 V
DW-UHF-20KW	20 kW	50–250 kHz	3-ph 380 V
DW-UHF-30KW	30 kW	50–200 kHz	3-ph 380 V
DW-UHF-40KW	40 kW	50–200 kHz	3-ph 380 V
DW-UHF-60KW	60 kW	50–150 kHz	3-ph 380 V

06 Frequently asked questions

What does 'draw back' mean?

Tempering a hardened blade down to the target hardness — here HRC 50–52.

What was achieved?

Mean 50.3 HRC on fifteen saw teeth, at the required 60 in/min.

What temperature and frequency?

700 °F (371 °C) at 100 kHz.

Which equipment?

DW-UHF-10kW with a step-down transformer and a remote heat station.

Which coil?

A water-cooled channel coil with single and double turns and concentrator plates.

What do I send for a quote?

Blade width, thickness and grade, hardness target, feed rate and supply.

Why choose HLQ

Proven result

Mean 50.3 HRC, on target.

Continuous

60 in/min blade feed.

Channel coils

With concentrator plates.

Uniform

Teeth vs back within ½–1 pt.

Saw blade range

Tempering and tooth hardening.

DW-UHF series

4.5–60 kW, 100 % duty.

Request a saw blade heat treatment proposal

Send us the blade size, steel grade, hardness target and feed rate. We will propose the coil, transformer 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

- Blade width, thickness and steel grade
- Hardening or tempering, and target HRC
- Uniformity tolerance (teeth vs back)
- Feed rate
- Available supply and cooling water