

Induction Tempering Spring

United Induction Heating Machine Limited

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Tempering Spring Objective Temper a spring by heating it to 300°C (570°F) in 2 – 4 seconds

Material Stainless steel AISI 302 springs- different length from 60 to 110 mm outer diameters 8 mm.- wire diameter from 0.3 to 0.6 mm

Temperature 300°C (570°F)

Frequency 326 kHz

Equipment • Power of 6kW induction heating system

- remote workhead, two 0.33μF capacitors (total 0.66μF)
- multi-turn C-channel coil developed for this application

Process Springs are mounted on non-metallic mandrels to facilitate loading and unloading and are placed inside the coil (picture). Power is applied for 2 – 4 seconds, completing the tempering process. The C-channel distributes the heating evenly and enables the convenient staging and removal of the springs.

Results/Benefits Efficiency: Energy is applied directly to the springs only; surrounding air and fixturing are not heated.

Precision: temperature and duration of process are controlled **Convenience:** method integrates into a continuous process

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