Heating a steel tie down assembly to loosen steel pin for rotation

**Objective**  Heat steel tie downs on containers to loosen steel pin so pin can rotate

**Material**  Steel tie-down assembly with a 2.5” (63.5mm) dia. flange, 1” (25.4mm) dia. rod and pin ring approx 4” (101.6mm) OD and 0.75” (19.05) thick steel

**Temperature**  1000°F (538°C)

**Frequency**  282 kHz

**Equipment**
- Ambrell 10 kW induction heating system, equipped with a remote workhead containing two 1.5µF capacitors for a total of 0.75µF
- An induction heating coil designed and developed specifically for this application.

**Process**  A single turn helical coil is used to heat the assembly. The coil is placed around the pin and power is applied for 120 seconds. After heating, a steel rod is inserted in the pin ring, pressure is applied and the pin ring spins freely.

**Results/Benefits**  Induction heating provides:
- Precise and accurate placement of heat without affecting surrounding areas
- Much faster process time, from hours to minutes
- Repeatable and consistent results
- Even distribution of heating
Tie down assembly in coil

Side view of pin ring