Comparison of IGBT & SCR Technology based Induction heating machine

❖ Induction Heating Technology History

  1\textsuperscript{st} generation: Vacuum Electronic Tube
  2\textsuperscript{nd} generation: SCR (Silicon Controlled Rectify):
  3\textsuperscript{rd} generation: IGBT (Insulated Gate Bipolar Transistor)

❖ Our Induction Heating machine is always IGBT technology based

❖ Induction Heating machine for Pipe Bending consists of four parts:
  1. Converter
  2. Output Transformer
  3. Induction Coil
  4. Cooling system for Converter and Transformer
Feature Difference

Technology
IGBT is latest/newest technology in Induction Heating
SCR is a little old technology in Induction Heating

Power factor
IGBT based Induction Heating with high power factor 0.95-0.98
SCR based Induction Heating with low power factor ≤0.80

Efficiency
IGBT Induction Heating: Higher efficiency
SCR Induction Heating: Lower efficiency

Easy operation
SCR Induction Heating: output capacitors install near transformer, must to be changed when bending different size of pipe
IGBT Induction Heating: output capacitors inside generator, no need to make any change when bending different size of pipe

Energy saving
Parts Difference

- Parts different is mainly from converter and Output Transformer

**SCR based Induction converter** and output transformer

*Note:* Compensation Capacitor chamber is necessary for SCR based Induction converter due to low power factor
Note: DUOLIN IGBT Induction converter *is high* power factor (0.95-0.98), so there is *no* Compensation Capacitor chamber
IGBT based Induction Converter from Duolin Electric

Module design, easy for repair
Control panel
Output Transformer from our competitors

Output Transformer from Duolin Electric