



## STS TECHNOLOGY

The SANTO STS System consists of a thermally rated, electrically insulated wire installed inside a ferromagnetic heat tube. The insulated wire is connected to the heat tube at the end termination, and an AC voltage source is connected between the heat tube and insulated wire at the power connection. AC current flows down the wire, returning on the inside surface of the tube.

The STS system is electrically safe and produces heat in the ferromagnetic tube through the effects of two well-known electrical phenomena: Skin Effect and Proximity Effect. These phenomena cause the current flowing in the heat tube to be concentrated on the inner surface; the current concentration is so complete there is virtually no measurable voltage on the outer wall of the heat tube. Heat is also generated due to the resistance of the heat tube and STS wire, and through eddy currents and hysteresis in the heat tube. Since the heat tube is attached to the process pipe and completely within the thermal insulation system, heat is efficiently transferred into the process pipe.

Circuit lengths are determined by a combination of cable size, cable voltage, temperature rating, heat tube size and attachment method. It is feasible to heat up to 25 kilometers (15 miles) from a single source using supply voltages approaching 5,000 volts. With the cable inside the tube and pull/splice boxes located along

the line, any field modifications, cable replacements, troubleshooting, etc... becomes very simple. All can be accomplished without disturbing the insulation.

These systems can be provided as a pre-fabricated and pre-insulated piping system in which the steel tube is factory attached to the carrier pipe.

