

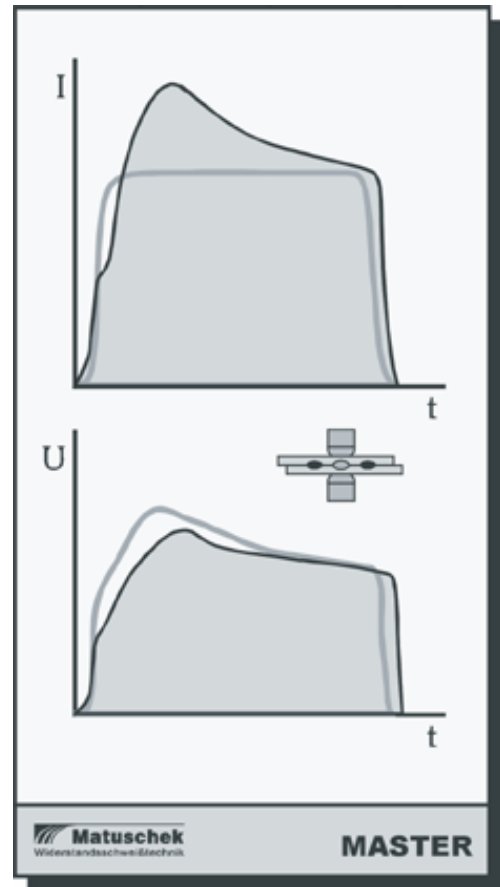
MASTER *Welding Control*

MASTER is based on the principle of the reference welding operation. During the reference welding operation, the welding current is maintained at a set constant level. A good weld joint is attained without disturbances and with optimum settings for welding time, welding current and electrode force. The welding current and electrode voltage data which are measured during this welding operation are stored. After switching to **MASTER** control mode, all subsequent welding operations are controlled in accordance with the stored **MASTER** reference data.

These control processes inevitably necessitate fast welding current sources. This requirement is fulfilled by medium-frequency inverters with a response time of 1 millisecond - at an inverter frequency of 1,000 Hz. Thyristor controllers with a response time of 10 or 20 milliseconds are too slow for this adaptive welding applications.

The adaptive **MASTER** control process is sensitive to:

- mains voltage fluctuations
- shunts
- electrode wear (automatic stepper function)
- electrode force fluctuations
- adhesive and sealing between the sheets
- welding splashes
- sheet thickness variation
- changes from 2-sheet to multiple sheet welds
- Changes in kind and thickness of coating



The **MASTER** control process compensates the various influencing factors by increasing or reducing the current strength and extending the welding time. Extension of the welding time can be limited.

Welding splashes are monitored via output of an status message.

Optimum adaptation to each weld spot guarantees that the required strength for weld joints is maintained throughout broad ranges.