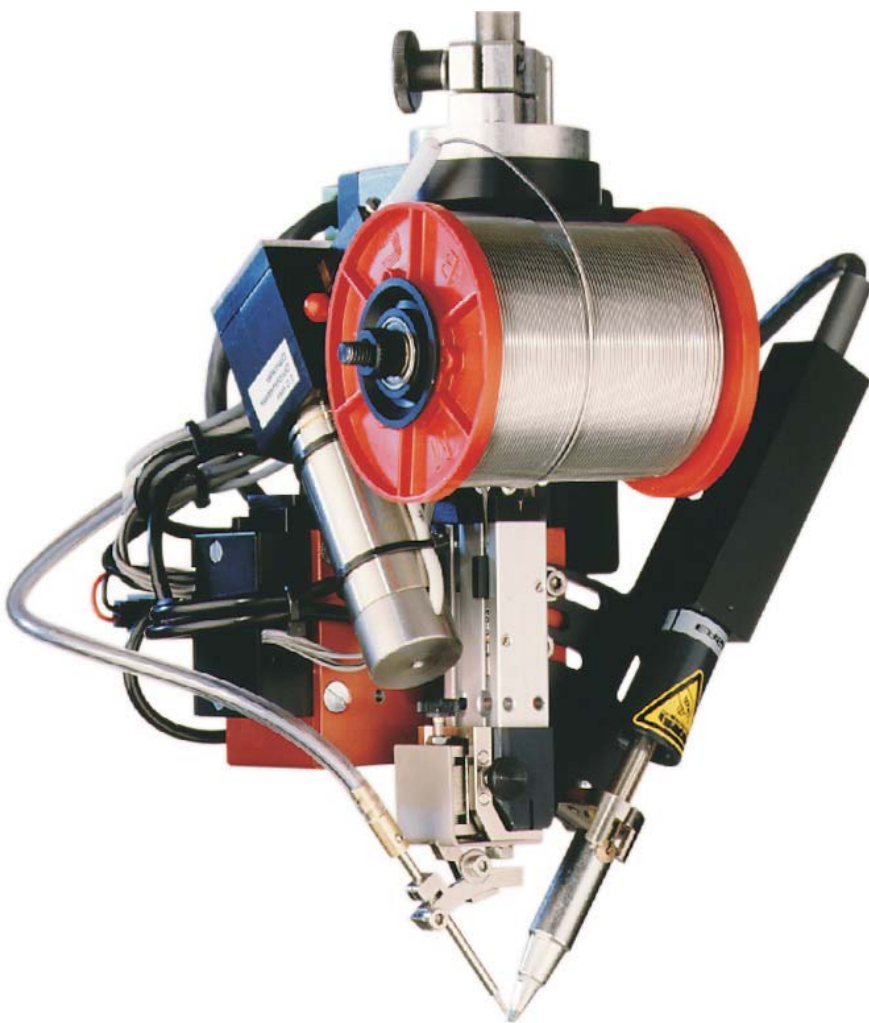


Automatic iron-soldering



■ **Patented
quickstep-
solder-tip
positioning
system**

■ **Constant
contact-force
of the solder-tip
in horizontal and
vertical direction**

■ **Flexible method
for difficult
solder tasks**

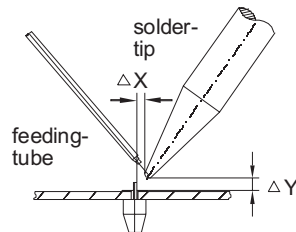
Principle

The solder-iron as a hand-tool for soft-soldering is state of the art since several decades.

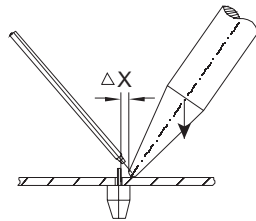
This process can be automated if essential criteria are taken care of. One criteria is the contact force of the solder tip to the solder joint. This is necessary to have a constant heat transfer. For this, the patented quick-step method was developed.

For the iron soldering process flux is necessary. It is applied through a flux-core in the solder wire with one or more cores. The solder tip heats up the solder-joint and leads the tin to the solder joint.

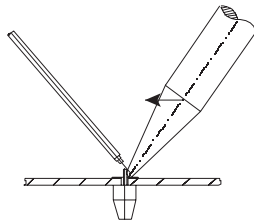
Quick-step methode



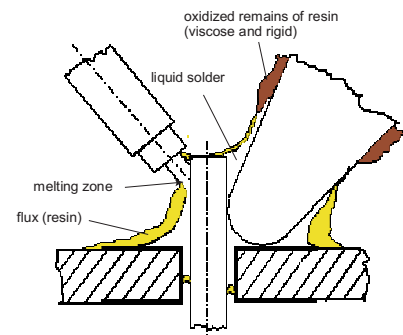
Step 1:
Movement with maximum velocity to the programmed position (teach-in position)



Step 2:
Vertical movement of the solder iron to the pc-board



Step 3:
Horizontal movement of the solder tip against the pin



Application

Not all solder joints on printed-circuit-boards and other electrotechnical products can be soldered with a mass-soldering-method as wave-soldering or reflow-soldering.

These solder joints often must be soldered sequential step by step.

With iron-soldering such solder tasks can be performed

- automatic and
- process controlled.

With a solder tool and a handling system with four programmable axis iron soldering is a very flexible methode and can be used for various types of solder joints.

Advantages

... Compared to laser-soldering

- + higher flexibility and wider range of applications
- + larger position tolerances of the solder-joint are can be accepted
- + max. Solder-temperature can not be exceeded
- + solder-process is more "robust"
- + smaller invest necessary

... compared to selective soldering

- + No dip-soldering, that means, the part must not be turned 180°
- + higher flexibility and wider range of applications
- + No separate flux application and preheating necessary
- + Stickstoffspülung nicht unbedingt erforderlich

Maschinen

Iron-soldering-machines can be build as fully automatic machines in in-line configuration or as manual workplaces with a dial-index-table.

They are base on the Wolf - standard-cell (see information "Production-modules") Depending on the solder task iron-soldering machines can have various configurations.

Almost all machine components are free of maintenance

All Wolf soldering-machines have

- a rigid machine structure and at the same time an outstanding design appearance
- easy programmable, precise motion axis
- modular structure
- integrated fume extraction
- control of the important process-parameters
- comfortable Man-machine-interface

Soldering-tool

The "key-element" of automatic iron-soldering-machines is the soldering-tool. The main components of the robotic tool are:

- Precise Slides with roller-bearings for the "quick-step-function".
- Motor driven Solder wire feeder with Encoder wheel and solder wire sensor. The feed length and the feeding speed is programmable
- Ceramic Heating-element with 80 W power.
- Pneumatic slide to lift up the solder-wire-feeding-tube for cleaning of the solder-tip.
- Precision slides to adjust the critical "wire hits solder tip"-point.
- Solder tip cleaning unit with rotating sponges and automatic sponge wetting.
- Precision solder tips



A complete range of solder tips are available

Application 1

Short info on a custom made machine:

- Product: Sensors for car engine control
- Cycle time: 2,5s per solder joint
- Automatic dial index table (high precision and speed)
- Robotic soldering tool RGL 01-S
- Robot: 4 programmable axis
- Teach pendant to program solder positions
- Man-machine-interface with text display and touch panel



Application 2

For more application-examples see our website



Short info on custom made machine:

- Product: PCB
- Cycle time: 2,5s per solder spot
- Transfer system with free floating pallet conveyor
- Pallet size 240x240 mm
- Robot: Four programmable axis. Repeatability +/- 0.05 mm
- Teach pendant to programm solder positions
- Robotic soldering tool RGL01-S
- Man machine interface with text display and touch panel

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Special Soldering

**Assembly
Automation**