

LWS090 Desktop Robot for Laser Soldering

Autonomous production cell with linear and rotary axes

Custom specific axis modules in portal or flatbed design. Up to 4 NC axes with step motors and ball screws

Laser safety housing

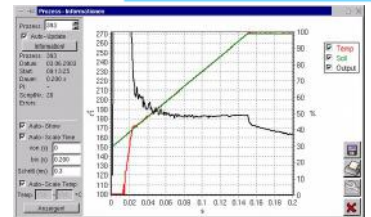
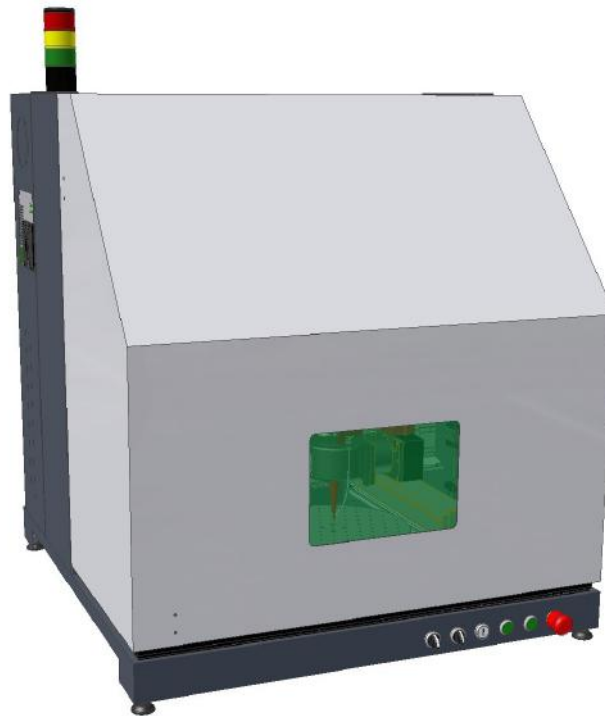
Fiber coupled 60W or 140W diode laser and pyrometer process controller already included

Ethernet connection and remote access via internet

Laser soldering with process times down to 1s or Laser plastic welding

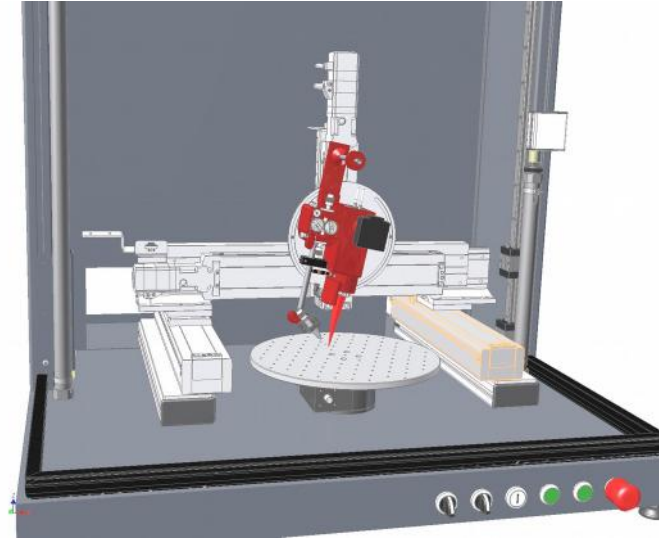
Powerful software tools for quality assurance during production:

- LASCON® Quality control for the laser process
- Video monitoring with LASCON® Camera Manager
- Flexible CNC Programming Soft-PLC



Specifications Desktop Robot:

- 3 linear axis (300mm x 300mm x 100mm) and 1 rotary axis
- Structure is free-standing
- Access from the front
- Lift door
- Forced and safe shutdown of laser system when opening liftdoor
- Stable base frame
- Internal cabinet is illuminated
- Integrated safety PLC for safe processing
- Diode laser up to 60 Watt light output (Option 100W light output)
- Laser processing head with integrated video camera and pyrometer
- Unique LASCON® Laser Process Controller with quality control
- Closed Loop Control for temperature controlled laser processing
- Video monitoring and storing of the laser process
- Flexible CNC programming
- Optional teach panel for comfortable position teaching
- Optional vision guided positioning with latest machine vision system
- Weight approx 80kg
- Foot print only 0,9 x 0,9 m
- Power supply: 180 - 240VAC, 50/60Hz, fuse with 16A



Diode laser + Soldering Process Controller:

The LASCON® Controlled Laser LCL is a kind of hybrid between a diode laser with typical power of 60W (140W) and integrated unique LASCON process controller – all in one box.



Laser heads and laser control unit:

At the end of the optical fiber is a laser processing head. There, a pyrometer and a video camera are projected into the beam path of the laser. The pyrometer measures 10,000 times per second the temperature in the laser focus. The unique LASCON controller compares measured temperature with a programmed temperature curve and does closed loop control to the laser power. The system stores up to 500,000 laser processes and monitors all processes in real time based on pre-defined parameters. The parameters can be programmed with a simple programming language in a process script. The LASCON controller can store up to 255 scripts and activate within milliseconds. If the laser process differs from the programmed parameters, the LASCON controller generates an error control signal that can be interpreted by a PLC.



Precision Solder Wire Feeder with Encoder Feedback:

The solder wire feeder SWF100 was developed especially for fast and precise soldering. It has a feeding accuracy of 10µm and a response time of under 1ms. The feeding head is gearless and has a very long lifetime. As special feature, even the forward feeding acceleration is programmable. This leads to an improved start behaviour of the soldering process by a slowdown of the feeding at the beginning. At first, a solder melt pool is formed in which the wire is pushed then with constant speed.



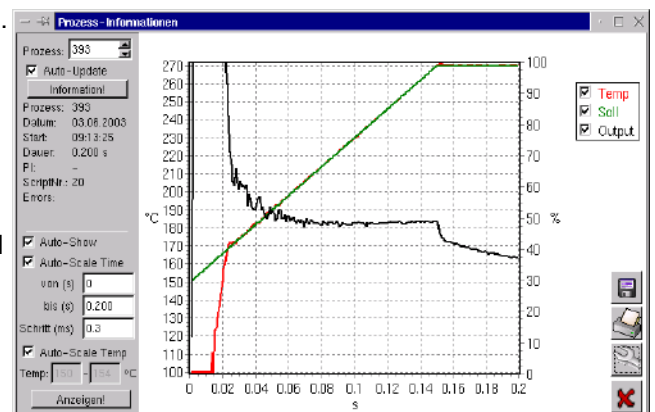
Features:

- Controller unit fully integrated into LCL – see above
- Zero slip feeding by encoder
- Integrated encoder detects also solder wire hold-up and the end of the solder wire
- Complete feeding process programmable in LASCON® Process Manager by script commands
- Power supply provided by LCL
- Precision adjustment device for positioning the nozzle
- Standard solder wire diameter is 0.3mm and 0.5mm (others in request)
- **Patent pending „Wire Checker Technology“** always detects the position of the tip of the solder wire before starting the laser soldering process

LASCON®:

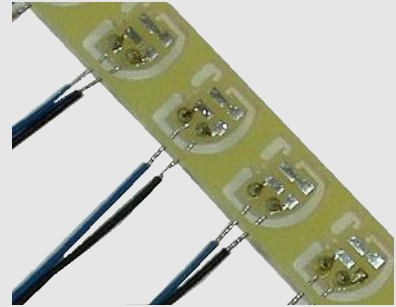
LASCON is a unique temperature measurement and control system, which provides powerful possibilities to handle complex laser soldering processes. **LASCON is market leader with over 1500 sold units in laser material processing since 10 years.**

- Built in, ultrafast, fiber coupled infrared pyrometer with sampling rates down to 100µs – blocked against laser light.
- Infrared pyrometer with visible pilot laser beam for aiming.
- Ultra fast adaptive closed loop control for high speed laser soldering in unmatched quality
- Rugged controller with realtime operating system and 4 GB flash disk to store data with a rate up to 10kHz
- The system can monitor and supervise laser processes and can create an error signal, if the temperature process does not follow the predefined parameters. This parameters can be defined by a simple programming language in so called „scripts“.
- Up to 255 different script can be stored on the system and can be activated within milliseconds. In case of laser soldering, thus up to 255 individual laser joints can be processed and supervised.
- The flash disk in the LCL can store up to 500.000 processes.
- A separate software task checks, whether the flash disk is full, gives a warning and starts deleting of old processes
- All features are supported by our powerful PROCESS MANAGER SOFTWARE (LPM) .
- Easy calibration of the pyrometer can be done with the LPM software. This allows, that the pyrometer can always be lead back to NIST standards.

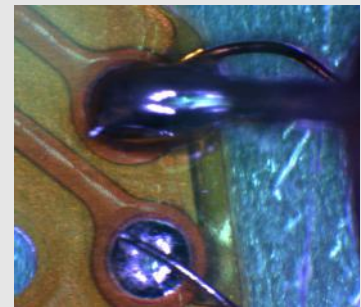


– Applications :

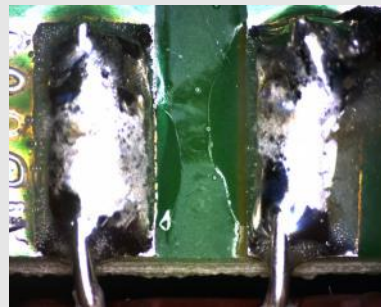
Laser soldering
PCB, electronic parts



Laser soldering
Flex foil



Wire to pcb



Through hole device to pcb

