



Ersa "Successful and healthy manual soldering"

A typical soldering workstation.

The right equipment and ergonomics at the workstation

In electronics manufacturing, manual soldering workstations are often replaced by automatic processes. However, there are still many applications where soldering has to be done manually. In

rework in particular, the requirements on qualified soldering experts have even become more demanding. Which factors determine a good soldering result in an optimum working environment?

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In times of highly integrated electronics and extremely small components, a high level of concentration and a feeling of well-being among employees are crucial factors of influence for good manual soldering results. This applies equally to colleagues in production, technicians working at the test stations or hardware developers in the electronics laboratory. In addition to the basics such as the right tools and auxiliary materials, there are other factors which influence employees and their performance.

ERGONOMIC – INDIVIDUAL

To start with, the soldering workstation must be equipped properly. A height-adjustable worktable and modern chair are essential for ergonomic manual soldering. Some manufacturers have started supplying Ersa soldering stations as modules for their laboratory worktables. Ergonomics plays an important role here: if the employee is not sitting in a favourable position, tense muscles and poor posture can influence the soldering result. This rule applies to all workstations of course, but since a particularly high degree of concentration and precision are required for soldering, the effect of the wrong sitting position is much more significant here. Yet new tables and chairs are not the solutions in themselves, it is important for these to be adapted professionally to the individual employee and his/her requirements. Trained consultants help with optimum workstation set-up – because you can't see for yourself what your sitting position is like.

Homogeneous, low-glare and sufficiently bright illumination of the table area is another important basic requirement. Insufficient illumination may lead to false posture, making the working result and the employee's health suffer. Pertinent directives such as those issued by employers' liability insurance companies provide very good guidelines, but individual employee sensitivity can vary when it comes to lighting, so that appropriate adaptation may be necessary. The reading off of instruments e.g. at soldering stations must be given special consideration. Reflective displays should



Factors which influence a good soldering result.

be avoided and low-contrast displays adapted in such a way that employees can read off the important information values relevant for their work with ease.

TOOLS AND RESOURCES

It goes without saying that the right soldering tools and auxiliary materials are crucial for the successful performance of a soldering job. Processing of the necessary solder alloy with a suitable soldering iron and use of the right fluxing agent are the key variables here. For the small soldering spots typically required these days, fine soldering tips are just as important as sufficient magnification through a suitable microscope. Swift and reliable soldering is only possible when the shape and size of the soldering tip match the soldering job to be performed. When the microscope is being set up, the sitting position must be taken into account. Posture must not be cramped for high-precision soldering work. A handy soldering iron such as the Ersa i-TOOL, which weighs just 30 g, makes work significantly easier. Other tools include desoldering tweezers, a

VIDEO
HEALTHY
SOLDERING



VIDEO
THE RIGHT
TIP



A typical soldering workstation.



Relaxation exercises during breaks.

ARM 1 and EASY ARM 2 can be connected to the soldering stations of the i-CON family and are only active when soldering is actually taking place. They ensure cleaned breathing air at low operating and filter costs.

AND THE EMPLOYEES?!

Employee well-being continues to play the central role at the soldering workstation. Sound training as a soldering specialist, as offered by "AVLE" (Ausbildungsverbund Löttechnik Elektronik), a vocational training association for soldering and electronic engineering) provides a solid base. Only trained personnel can carry out the sometimes extremely challenging jobs to the required quality standard. It becomes clear directly that the employees' personal equipment has to be adapted to the task on hand. Gloves and safety goggles are just as important as the right ESD equipment and comfortable and practical working clothes.

Even under the best of conditions, it is necessary to take a short break from work now and again to regain concentration and prevent muscle tension. During breaks, the first concern should be to clean and care for the most important "instruments" – employee hands. Solder and fluxing agents leave residue on the skin. Even if gloves are worn, this residue must always be washed off. Skin dries out during work and needs appropriate moisturising care.

desoldering iron and a hot-air iron. It is advantageous if the soldering tool can be held comfortably in a three-point grasp. This hand position is learnt early and allows precise instrument guiding. Ideally, these four soldering tools can be operated in parallel like on the Ersa i-CON VARIO 4. With this equipment fitted, there is no need for time-consuming tool changing and all manual soldering work can be done professionally.

A modern soldering station should also be equipped with a soldering fume extraction unit of course, in order to filter out the damaging respirable particles produced during soldering. A healthy indoor climate should go without saying in every company. The especially quiet Ersa solder fume extraction units EASY

Then simple, short relaxation exercises at the workstation are recommended: eyes are rested, strain is relieved on the neck and shoulders, and arms, torso and legs are fit again after just five minutes. Many health insurance companies and private organisations such as "Die Gesundheitstrainer" (The health trainers) provide information about ergonomics at the workstation and suitable relaxation exercises. By the way: a smile of recognition and genuine praise for the work done also do lots of employees good! Good soldering results and healthy, motivated employees will be the norm if a few simple rules are followed and the right factors are taken into consideration in terms of equipment and qualification of the people concerned. ■



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