

EVS SOLDER RECOVERY SYSTEM

EVS SOLDER RECYCLING

WHEN GOOD ENVIRONMENTAL PRACTICE HAS AN INSTANT PAYBACK

Wave Soldering has been around for a long time and although it has become more effective and more efficient as a process, one thing hasn't changed much, in that most solder machines generate a high amount of dross. **In fact, on average some 75% of the solder in the bath oxidizes over time to become dross which has traditionally been dumped into a bucket and disposed of as scrap.**

Reducing the solder dross has not been a high priority for most busy production engineers. And over the years its low level in the pecking order has resulted in minimum attention paid to the environmental issues of lead oxides from the solder and the financial consequences of large amounts of untreated dross.

Metal dealers and solder suppliers have however a different perspective. They know that dross is almost **entirely** made up of **pure solder** and if they can get it back they can cheaply reprocess it and sell it back to users. As only **25%** of what they sell ends up on the boards at any one time they can effectively sell **the same solder four times over.**

The task of de-drossing is carried out with varying degrees of thoroughness. Those in a hurry often put as much solder as dross into the scrap bucket. On the other hand, those who have time to spare, may manually squeeze the dross through a perforated ladle, breaking down the crusty oxide coating to release some of the trapped solder back into the bath, before placing the residue into the bucket. However, even this process **which extends the wave down time** still results in a minimum amount of solder being recovered and takes vital time away from production.

Health and safety regulations however, are continually pushing back the levels of previously acceptable practices to improve working conditions. When dross is being manually squeezed there is a greater chance that these dangerous substances can be released into the workplace and particularly affects the operators squeezing the dross.

First invented in 1995, solder recycling machines evolved through various prototypes until the new range of EVS machines were launched in 1998. Completely re-engineered to world industry standards by new owners, these EVS lead and Lead Free range of machines, the New EVS 1500, the New EVS 8K and its larger capacity brother the New EVS 10K, have since proved to be reliable and profitable in hundreds of installations around the world.



EVS International Range of lead and lead free EVS 1500, EVS 8K and EVS 10K Solder Recovery Machines

The EVS which is patented worldwide owes its inspiration to the previously mentioned practice of manually squeezing dross through perforated screens and ladles. The EVS heats and squeezes the dross inside a sealed chamber using a pneumatic piston. It does this very efficiently and recovers, through small slots in the chamber, **an average 75% of the weight of dross fed into it as a reusable solder ingot. The ingot, formed in a tray beneath the chamber, is exactly the same in alloy as the solder in the wave bath.**

Once loaded, the fully automatic process takes from 6 to 10 minutes, depending on the capacity of the EVS type being used. At the end of the cycle the residual dross is ejected from the chamber through a closed chute into a dross bucket which, when full, can be sent for reprocessing in the normal way.

The EVS is supplied with its own cart and air extraction system, which makes it an entirely self-contained unit capable of being moved safely and quickly between wave solder machines. It requires only a single-phase 220-240v power supply and an airline to operate. One EVS solder recovery system can usually service 2 to 4 wave baths during an average production shift.

Ease and speed of operation is another key factor. Operators simply wheel up the EVS to the wave bath and ladle the dross into the hopper which has its own extraction to eliminate fumes. The EVS has a simple LCD readout that displays processing data and diagnostics and makes for simple maintenance procedures. Installation and on site training are also very easy and both can be accomplished in less than half a day allowing the rapid assimilation of the EVS into daily operating procedures.

The EVS will reduce solder bar consumption on average of 50%, **speed up your de-drossing time by up to 75%**, improve your environmental credentials, and is extremely simple to use. Some people find such outstanding performance hard to believe. Even though these results have been scientifically proven time and time again, some solder companies and those fearing a loss of their revenue have sought to resist the introduction of EVS machines.

In the past, the consideration of scrap and solder dross in particular, has been of secondary importance. However, things are changing fast. Large companies are increasingly concerned about environmental issues and the gradually growing importance of the ISO14001 environmental standard is spreading awareness of **Recycling, Re-use and pollution Reduction.**

As perceptions change solder recovery stands out as an environmentally good thing to do without the downside of increased costs. As already mentioned the time and cost savings gained by using an EVS Solder Recovery Machine are **spectacular.** When applied to lead free solder, which costs 3 to 4 times more than eutectic solder, the economic case for recycling becomes **irresistible.**

The case for solder recycling is best made by those who are already using EVS machines. For them, without exception the EVS has performed up to or better than expectations and its ease of use and low maintenance have enabled it to fit seamlessly into day to day operations on the shop floor.

Marla Wineinger, from Kimball Electronics Jasper USA, says, "The EVS Solder Recovery System was installed in our factory in just a couple of hours. The training required was quickly and easily implemented with the operators and we immediately dross reductions and solder bar consumption reduced significantly. Our experience supports the manufactures claims of up to 50% reduction in solder purchases and now we have several units at Kimball electronics worldwide.

The EVS Solder Recovery System was one of the fastest paybacks we have ever seen because as soon as we started to use the machine we saw instant savings in solder purchases...

Kimball Electronics has had all the generations of EVS Solder Recovery Systems over the last 10 years from the original versions to the latest EVS 1000, 7000 and 9000 range. EVS International has a continuous improvement policy which has dramatically improved their machines whilst they also support the first models launched.

The systems are easy to operate with little to no down time. It fits into the standard wave solder dross removal process requiring no additional user time. The system provides a clean, lead-free environment for the users and actually eliminates lead handling with the automated dross into the bucket system that is

built in to its optional cart. The machine also satisfies an ISO 14001 compliance issue. Kimball did not have any proactive manufacturing processes in place to reduce waste in compliance with ISO 14001. The EVS Solder Recovery Systems provided an answer.

The economic case becomes even more pronounced with lead free solder. A major U.S. electronics manufacturer installed 2 EVS machines, one for each of their 2 lead free lines. **Savings came in at over \$1000 a day, 7 days a week** for each of the EVS machines they were using. This staggering level of savings meant that **the EVS machines paid for themselves in less than two months**, a payback nobody can afford to ignore.

The EVS is not only suitable for Wave Soldering process but can be used anywhere where volume special soldering takes place, such as for dip pot processes, where the very high cost solders in use make recycling even more attractive.

As this current recession in Electronics begins to roll back and capital purse strings are loosened the demand for the EVS is growing ever stronger. Soon these hard working machines will be **standard equipment on every PTH line in the country.**

By Simon G Norman
EVS International