

# “Pimp My Machine” – Environmentally Friendly Recycling of Machines



**MACHINE RECYCLING** ● Bringing innovations to the market by recycling machines? Modifying and designing machines so that a printing machine evolves into a finishing system? Recognising trends and then developing and manufacturing completely new systems accordingly? Does this have anything to do with ecology and sustainability? We discussed this topic with the owner of Unigraphica AG.

Based in Ruggell, Liechtenstein, the company Unigraphica has been operating on the worldwide stage since 1985 as a supplier and a total solutions provider in the graphics industry. With many years of experience in markets such as Russia, Romania, Hungary and Brazil, as well as sound industry know-how and the application of sophisticated technology, the company offers a product range serving sectors such as digital printing, processing systems, web presses, security printing and printed electronics. This includes selling new machines and recycling used machines, as well as machine development and custom machine construction according to customer requests.

**DD: Mr Schweiger, your company develops and constructs machines and even manufactures on-site in Ruggell, Liechtenstein. How many people does it employ?**

Joseph Schweiger: We describe ourselves as mechanical engineers with high added value, as we carry out a lot of our own manufacturing. Certain parts for which we lack the optimum equipment are produced externally. Our company employs 25 people, of which five work in engineering, five in administration and 15 in manufacturing.

**DD: As well as developing machines, your company sells new and used machines. What is the difference between new and used?**

There are customers that, when making an investment, can only buy new machines in the traditional sense, as they do not understand recycled systems.

Owner Joseph Schweiger with an overhauled and recycled machine from Müller Martini that now also bears the Unigraphica logo



As a distribution partner, we offer these customers a new machine, for example from Müller Martini. We also refer to our recycled machines as new machines, because only the steel frame is recycled from the used machines. We completely disassemble the systems and fully recondition the moving parts. We fit new ball bearings, refurbish the cylinders, apply new rollers and so on. But, most importantly: we implement the latest sensor technology. For us, this is the concept of a new machine. After all, what makes a machine modern in the offset industry, for example, is its monitoring systems, register controls, ink density measurements and suchlike – and we install these technologies in the used machines. In other words, we take the machine – and sometimes an older unit is built more robustly than a new one, thereby ensuring a very long service life – and we fit new electronics and sensors. Our machines then correspond to new ones, so to speak, but bear the name Unigraphica. Approximately 30% of our turnover comes from recycling machines. But we also manufacture systems developed in-house, such as our patented Challenger Web Finisher with built-in finishing and additional elements. The reel-to-reel production in these systems runs up to 30% faster than reel-to-fold or reel-to-sheet. Since the system does not require a signature folder, it takes up 35% less space, resulting in a 50% reduction in manpower and 30% lower investment costs, as well as saving 10 to 15% on the materials, as no overfold is necessary.

**How do you decide whether to develop a new system or to refine or recycle within the framework of a manufacturing partnership?**

That is determined by the customer's budget. And, with our philosophy, we are in a better position to address this than manufacturers of new machines. In fact, we only develop things that are not yet on the market. Otherwise, we try to tackle quite a lot through collaborations.

**DD: You describe your company as a world-leader in the trading and overhauling of used machines. How do you think this leading role is expressed?**

A leading role of this kind is always a matter of interpretation. We see our role as being in the field of quality, in what we make of the machines. On the one hand, we help interested parties to construct a printing works with used machines that have undergone a general overhaul; on the other hand, our machines present a genuine alternative to building new machines. We overhaul the machines in such a way that they are once again technically flawless, and we often introduce innovations. For example, after an overhaul, a 20-year-old web press is suitable for the printed electronics production industry. Our machines receive a new-machine guarantee, as stipulated by the EU. In the event of problems with the machine, we are the people to call, not the original manufacturer. The machines are at least as fast and precise and deliver at least the same print quality as a new machine.



The Docupack from Unigraphica is actually a Heidelberg GTO 52 ZP plus. The offset printing machine with two print units was converted into a sheet-finishing system, which can apply labels or cards to printed sheets from offset or digital printing.

For the parts of the machine that have remained unchanged, we use original spare parts from the original manufacturer. This is also a useful sideline for them – a win-win situation for everyone. Otherwise, the old machines would normally no longer be of use. Nowadays, single- and two-colour presses are being decommissioned at a rapid pace and even destroyed.

**In which countries do you have the most buyers and interested parties?**

Wherever the economy is thriving and the market is still oriented towards buyers. We currently sell more than 50% of our recycled systems to Africa, South America and Eastern European countries. We not only supply technology in these countries, for example, but also carry out the planning for the entire building or plan the workflow. Finally, we also train the skilled workers and even provide the staff. We work hand-in-hand with employees and guide them until they have sufficient expertise of their own and are “ready to walk alone”.

**DD: The University of Applied Sciences and Arts Northwestern Switzerland prepared a “life cycle assessment for recycled used printing systems” for Unigraphics. What exactly did it investigate?**

This work, which was only completed recently in June 2013, compared the eco balance for a

mechanical engineering. Our machines conserve environmental resources, and our customers can completely change their company's environmental footprint by using our machines. This makes it easier for them to present themselves as an environmentally friendly company. Working with recycled systems also contributes to climate-neutral production.

Unfortunately, no legal precedent exists whatsoever with regard to what constitutes a used and new machine. In some European countries, as is the case in Germany, different depreciation models exist for a used or recycled machine than for new machines. This fact also has an adverse effect on so-called public tenders. This is a grey area that we wish to legitimise. When you see how much energy can be saved through the recycling of machines, and how our production process protects the environment, a recycled machine should also receive environmental subsidies. But we are up against a lobbying problem, since there is, as yet, barely any awareness of recycled products in our “throwaway society”. Financial institutions also face corresponding difficulties in associating themselves with recycled systems. Our machines are reasonably priced, have a good eco-balance and are economical in their energy consumption. We offer excellent service and a clear environmental conscience.

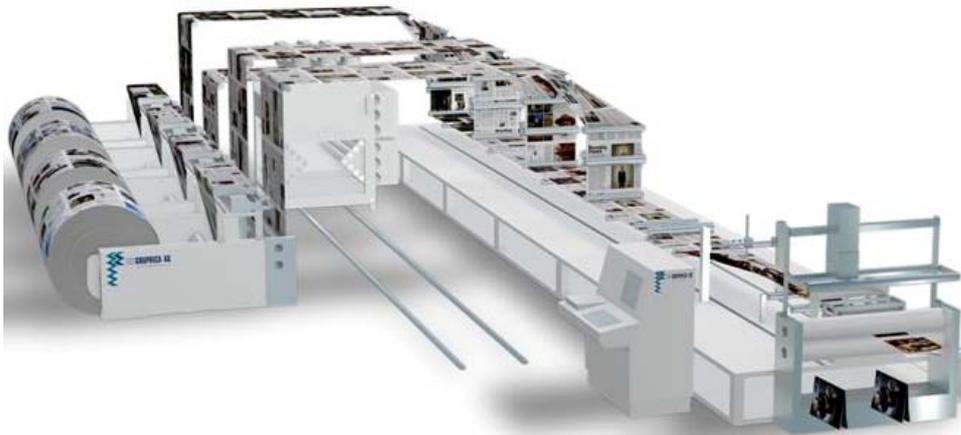


Diagram of a Challenger system: The system processes a wide range of substrates, operating with up to seven webs. With modular processing stations at any position along the webs, it can incorporate additional functions into the products before these are bound together.

used printing system recycled by us with that of a new printing system. The model printing system corresponded to a common and frequently used model. It weighs 20.2 tonnes and consists of five printing units with a web width of 520 mm and a max. printing speed of approx. 250 m/min. All relevant environmental impacts were investigated, such as CO<sub>2</sub> emissions from material and energy flows along the value chain. The results of the eco balance showed that “the recycling of used printing systems by the company Unigraphics exhibits a significantly more environmentally friendly use of resources when compared to producing new printing systems of a comparable nature. This applies both to the impacts on human health and to the strain on resources and the pollution of ecosystems and their various compartments.” Our production is therefore based on environmentally sound

**DD: How much do the recycled systems cost?**

Our systems cost approximately 50 to 60% of the price of a new machine with the same performance data. It is therefore always economically attractive to purchase our technology. It is also both sensible and important from an environmental standpoint.

**On the other hand, the university's research also makes it clear that your work could be even more environmentally friendly.**

Correct. There is nothing that cannot be improved. This relates, for example, to our heating systems and therefore to the surroundings in which we carry out production. But I believe that we are developing in this area and that we are keen to improve – which is, of course, vital if we are to further legitimise our business concept.

**Questions by: Petra Ebeling**