



**2009  
January**

**Screen Printing is Everywhere**

2009 is a real opportunity for the screen printing process and more importantly companies who are highly proficient in the process. Times really are not all gloom and doom, difficult yes, challenging certainly but not “The end of the world is nigh!!” The situation is closer to “It’s life Jim but not as we know it” reportedly spoken by “Bones” in Star Trek. There have been momentous changes, the banks have been shown in their true colours and profligate spending by the populace has virtually ceased. Reality has finally arrived and it has been a bit of a shock for many people who have only known limitless credit and rocketing house “values.” Of course there will be casualties in our industry, there always are, but now an increasing number will occur. Every close down is a tragedy for somebody but with certain sectors like Point of Sale quoting lower and lower prices the losses are inevitable. When speaking recently to a very successful exponent, he said “If the price demanded doesn’t fit our financial model we are not interested in quoting. Let someone else lose money.”

Over the last few years we have become so obsessed with the price of print that many people have forgotten that doing business is about buying an experience. From the very first contact with the customer to collecting the money and taking the next order. Digital/screen/litho debate is not important to the end customer. What is important is, does he get what he wants and does it exceed expectations?

Add to this need to provide a good buying experience with a key element of being DIFFERENT. Successful companies and successful individuals don’t follow the hoards, with the safety of anonymity, they stand out from the crowd and provide a series of benefits that make them wanted by other companies.

An interesting example of this in the screen printing industry is RKSiebdrucktechnik GmbH. Known more commonly under the initials RKS whose innovative squeegee designs are finding more applications in many screen printing applications. To many printers the squeegee is made of “rubber” and forces the ink through the mesh onto the substrate. To them increasing the pressure until the “rubber” is bent puts more ink down. They may grind the “rubber” they may change it or they might leave it in for months at a time clogged with ink and badly swollen. These are not the companies to whom RKS could sell their product. Nether are those who consider that the determination of whether a mesh is suitable is dependant on whether it is badly split or too “baggy” or both.

RKS is interested in precision, their high quality polyurethanes are mounted on a glass fibre or carbon fibre composite. The aim is to provide a stable contact surface with the stencil that ensures a consistent filling of the mesh openings with ink. Conventional squeegees can vibrate during the print stroke and cause varying inks deposits. The virtual elimination of the traditional bend in the squeegee reduces wear and improves control.

Maintaining stability on the squeegee with minimum pressure is key to top quality printing.

So here we have a company that has a product which in the first instance is more expensive than even the best conventional and goes against tradition. However, printers



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who use the system, produce higher quality, reduce costs and cut machine down time. That is not to say that a correctly set and operated conventional squeegee will not produce excellent results because it will. The RKS system makes set up and operation easier whether you are using flat be machines, cylinder presses or cylindrical screen machines.

As well as just squeegee the company extends its offering with a squeegee mounting and squeegee dressing machine. Other innovations are screen frames with RFID identification as do some of the squeegees. To some printers such sophistication is unnecessary however to a company who needs to control the process and its consumables such approaches are invaluable.

So here we have a company who is different, does not trade on price alone and whose sales are increasing. This has resulted in them having to build a new production facility to cope with the increased order level even in a downturn. This is what can happen when you sell more than just a product but an experience of excellence.

In my December article I spoke of other examples of excellence such as Macdermid Autotype and Top Banana the textile printer. The advantage of more difficult times is that excellence will prosper.

One of the many advantages of screen printing is that it is an ink friendly process. When the ink has to withstand difficult conditions screen printing can offer many options. There are few operating environments that are as challenging as the home. Householders are armed with a range of cleaning chemicals that in a place of work would make your Health and Safety Manager turn blue in the face. Caustics, acids, surfactants, detergents etc. and probably the most insidious of all solvents water, are in the householders armoury. Combine these in a dishwashing machine and you have the ultimate weapon in print removal.

In the ceramics and glass industry the matter of being dishwasher proof is addressed by covering the print in a glaze, even then colours can be affected over time by the chemical cocktail accelerated by very hot water. For those who do not have the luxury of firing a protective glaze over the design Ultra Violet curing inks from companies such as Marabu UK Limited with their UVGL range provide an answer to all but the most arduous applications. Not only is it suitable for bottles and restaurant glass but also can be used on flat glass that is not used externally. The energy and production time saved with these systems is extremely attractive.

For times when printed glass has to withstand extremes of heat, abrasion and chemical attack such as ceramic hobs firing the ink onto the surface is the only solution. HG Kippax provides equipment from single colour applications to full multi-colour lines.

Flat glass of approximately one metre square is first cleaned and dried in line. It is then pre-registered before moving to a print position where final positional adjustment is made. Printed with water-based inorganic inks the glass then is transported through an



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infra red oven where the ink is dried. Being glass there is a lot of heat captured in the glass itself during the drying process. It is therefore necessary to cool the glass before the next print station with refrigerated chillers. If it isn't chilled the ink for the subsequent colour will be heated in the stencil and block the mesh openings, resulting in missing print. There are inspection stations along the line and if required an automatic holding station that is used if a screen has to be cleaned. Once clear the line takes the printed glass back from the holding station and puts it back on the print line. You may say why bother, well glass production is a continuous process and throwing dozens of sheets away is not an option. Once the final print is completed the glass passes into the toughening furnace where it is toughened and the image is fired on at approximately 600 degrees centigrade. Production rates of 400 per hour are limited by the drying time of the ink but this is nearly always the case no matter what substrate is being printed. These Thieme Kippax machines are sold in the UK and worldwide.

Many pieces of domestic equipment would not operate without the help of screen printing. Membrane switches on a host of appliances are all screen printed, both graphics and conductive tracks. The virtual elimination on all but the most basic kettles of the tubular heaters is through the use of screen printed flat heating elements. A combination of resistive heating elements printed with insulating materials onto stainless steel that is then fired to form a highly efficient heating element that will produce several kilowatts over a 100 mm diameter area. That is with a fired ink film thickness of only 21 microns. This technique is now being expanded into other applications where large areas have to be heat treated and screen printing is the only process that will give the desired results.

Don't forget that the circuitry in your flat screen televisions has been screen printed and the patterned tiles that adorn many floors and walls. The question shouldn't be where do you find screen printing the question is where don't you find screen printing. Even digital printing machines will not operate without printed electronics. Screen printing is often hidden but always essential.