



all4-PCB Newsletter

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Paul Walker Director of Technology at Cartel Electronics

"Filling high aspect through-holes and micro vias has proven to be easier than we thought it would be. We have had the Mass machine for 6 months and have successfully filled up to 15:1 PTH and 2:1 MV. The learning curve was short and the machine to date has worked flawlessly."

MASS X/Y Via Filler



In house silver paste processing made possible by MASS

Dear Customer,

all4-PCB is rapidly approaching its 10th anniversary in North America. To be exact, our 1st day in operation was the 1st of October 2001. We are proud of having been able to persevere & grow as a company in such a tumultuous time span. Thank you to our customer base for putting your trust into us and we look forward to continued business together.

This newsletter will hopefully be the first of many. We would like to reach out to you and the market and provide more information about us as well as topics that we consider "good & informative PCB related news". We do not plan to have a regular schedule for this newsletter. The idea is to provide news when it is relevant.

Enjoy this 1st issue !

Via Fill Technology

Early on, all4 became a key supplier and pioneer of via filling process equipment (2004). With the combined representation of MASS via fill equipment, Pola & Massa sanding machines and Sanei & Tatsuta via fill pastes, all4 has developed a lot of experience in this field. This section of the newsletter is dedicated to sharing some of our experience and news regarding this continuously evolving topic.

According to our customer, Paul Walker - "Filling blind vias was easier than expected"

Cartel Electronics, a high-end, rapid prototype PCB manufacturer in Southern CA, purchased and installed a MASS VCP5000-1 vacuum via fill machine last year. Initial concerns about actual blind via filling capability were very quickly put to rest. Through hole via filling is done without utilizing the full chamber vacuum feature while for blind vias a strong vacuum within 20s is created within the entire via filling chamber. This ensures a very uncomplicated process for filling blind vias, since the vacuum quality is not dependent on how good the seal between the via filling head and the panel surface is. Filling through hole and blind vias is in fact quite simple with the MASS equipment.

-Success of the horizontal X / Y MASS via filling machines

2010 was a successful year for the horizontal X/Y via filling units. With 12 such units now sold in North America, the original idea of offering a via fill equipment process that allows processing expensive Silver conductive pastes cost effectively, has proven itself. The small head size allows processing vias with much less paste usage and it allows to specifically target the areas of the PCB that require the filling. In addition the semi-manual and manual versions of this equipment platform have been adopted by several companies that had less capital budget for bringing the via filling process technology in house. The machines provide void free filling capability as the units accept the use of the pre-filled tubes of Tatsuta or non-conductive pastes.

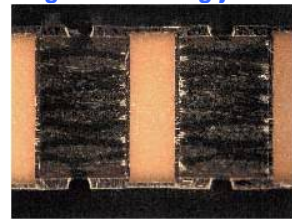
Simple via-fill head cleaner machine by MASS



Sanei IR6P



500g tubes or 1Kg jars



Pola & Massa



Fast and smooth surface Cu finish

Indubond



Improved layer to layer registration quality & repeatability

- Available upgrades and peripheries for making via fill more simple to implement

- * **New software features** that allow independent control of paste pressure on back and front which is ideal for double side blind via filling in one pass. Enhanced recipe control and regional process parameter control.
- * **Head cleaner unit** fast and efficient via fill head cleaning so that maintenance time is reduced and paste or head size exchange is simplified.
- * **Plug & Play paste tube insertion**

- The popularity of Sanei PHP IR 6P and Tatsuta AE3030 pastes continue to grow. Thanks to your support !

6P was introduced to the North American PCB market in 2009. Since then it has established itself as a paste that sincerely does make via filling very simple. Key features include very short cure time (less than one hour in one step) and an excellent rheology / viscosity behavior that allows the filling of the most difficult vias without voids and sagging issues. This combined with a Tg of 170C makes this paste a robust and reliable choice.

Tatsuta AE3030 has become the new standard for high performance conductive via fill. The fine Silver coated Copper particle size dispersed in the paste enable AE3030 to fill vias with literally any diameter or aspect ratio. Similar to the 6P paste, the AE3030 has a Tg in the same very high temperature range, namely 170C.

- Planarization trends - how to sand off solid Cu plated bumps with mild surface Cu attack

Clearly planarization after via fill is becoming more and more challenging. The question that the market is faced with is how to fill through or blind vias with paste or plated Cu and then sand off the remaining Cu buttons, Cu pad plates or Cu plated microvia bumps without sanding through the surface Cu. With more than 80 Pola & Massa sanding machines now globally installed and the associated experience related to this install base, Pola & Massa has learned that the 10 brush machine provides fast productivity but allowing to use very fine grit brushes that remove Cu features, but significantly reduce surface Cu attack. Furthermore the panels require much less post surface polishing, since the finish is smooth enough for most cases.

Please contact us to learn more. We will assist you to take the process to the next level. The PM650 Pola & Massa sander has lots of unexplored potential.

New and Featured Products:

Indubond - Inductive head bonding of innerlayers and sub-laminations prior to lamination. Bond to this idea !

Indubond from Chemplate (Barcelona, Spain) is very assertive about the fact that currently no better registration can be achieved than combining the benefits of pin registration with pinless inductive bonded lamination. Victor of Chemplate explains that pin registration, if done by well maintained equipment (post etch punch processes or optimizer drilling of pinning holes) ensures that innerlayers are lined up to each other (no slipping or moving relative to each other). The key is then to bond these layers into place along the edges of the laid up stack in 4 or 6 locations before there is any chance of movement. Victor, the inventor of inductive head bonding of innerlayers, points out that all types of materials are easily and rapidly bonded together utilizing the prepreg between each layer no matter how thick the layup as the adhesive. This bonded stack is then removed from the pins and placed into the laminator for lamination. The lamination process allows free movement of all layers without any kind of restraints around pin locations. Furthermore there are no issues anymore related to tooling pin quality, tolerances,

maintenance and separate plate maintenance that can impact the quality of material movement and thus registration during lamination. With more than 150 such systems already in use worldwide, this is not new technology. Indubond represents a new way of thinking that allows a much more repeatable and robust process for optimized and improved layer to layer registration.

You do not believe this? We are inviting you to provide sample layers and work with us to demonstrate our claims.

Lauffer Presses



Installation and commissioning at a midwestern circuit board facility in May

Lauffer equipment - not new, but state of the art

There is no doubt that Lauffer enjoys an exceptional name when it comes to high-end PCB lamination equipment. This image is significantly enhanced by visiting their brand new impressive production and engineering facility nestled in the beautiful area of Horb in the Black Forest of Germany. Lauffer is a company with over 200 employees serving 4 distinct market segments, one being the lamination industry.

all4 is proud to announce that besides being Lauffer's sales partner for the USA market, all4 is now also responsible for Lauffer lamination press equipment service. With 4 equipment service engineers (our 4th service engineer joining us starting in April 2011) and a centralized spare parts stocking center in Glendale, Southern CA, we are in the position to provide full equipment support. Besides robust and very qualitative engineering, Lauffer boasts best in class hydraulic pressure control during initial low pressure press requirements (as part of a lamination cycle) as well as high temperature pressing capability for this increasing market need. Please contact to learn more.

First EIE



Ink Jet - compatible with thermal and UV legend inks

First EIE - Best in class photoplotter technology now available through all4-PCB

What do all4 & First EIE have in common? We are both Swiss companies. Perhaps that was one reason that brought us together. Other more substantial reasons are our solid sales & service network across North America as well as our technical expertise in ink jet technology and also with photoplotting via Craig Coffman, our sales manager. During the short time we have now been working with First EIE, we have learned that the company enjoys a very solid reputation for their photoplotter technology and machines here in North America. We are excited to work with First EIE not only in the core field of photoplotting, but also to expand on their recent success in Europe with their inkjet product line for legend ink printing.

Single year 100% tax deduction possible with new equipment in 2011

With the signing of the Tax Relief and Job Creation Act of 2010, business owners who acquire equipment can now deduct all or much of the equipment's cost in a single tax year, rather than a little over a number of years. The deduction is known by its section in the tax code, "a Section 179 deduction". Under section 179, businesses that spend less than US\$ 2,000,000 on qualified equipment, may expense up to 500,000 in 2011. In addition, Bonus Depreciation for 2011 is increased to 100% on new equipment with no purchase limit. Bonus Depreciation even allows businesses with a net loss in 2011 to deduct the cost of new equipment. For more information, please visit www.irs.gov or contact the IRS helpline at 800 829 4933.

For equipment leasing options and information, please contact us at all4.



New Faces at all4-PCB

Craig Coffman

Craig Coffman joined the all4-PCB team in 2010 as Technical Sales Manager. With more than 20 years of industry experience in various engineering rolls, Craig works with our customers to define process and equipment solutions to fit their needs. All4-PCB offers new and refurbished equipment from many of the top equipment vendors in the industry. So whether you're looking for a Via Fill system, a Photoplotter, or just have a process problem you need a solution for, give Craig a call at (818) 790 4979.



Anna Mendoza

Anna joined the all4-pcb team last December as a Customer Service / Inside Sales Representative. With over 10 years of experience in various customer service roles in different industries, Anna is working closely with our customers in our spare parts department as well as our suppliers. You may contact her for any of your order needs (new orders, order status, pricing and lead-time) and she will gladly assist you. Anna is assertive, smart and has excellent interpersonal communication, oral and written. She is bilingual (English and Spanish).



Michael Lacap

Michael "officially" joined the all4-PCB team as our Inside Sales Assistant in October 2010. Michael first began with us as a part time intern - assisting in warehouse activities, inventory management, spare part deliveries and invoicing. Recognizing Michael's excellent people skills and ability to handle tasks with great professionalism and dedication, he was eventually progressed into a customer service position. Michael is your main contact for conductive and non-conductive via fill paste orders - but can also process any spare part orders and/or inquiries you may have.

Our team is ready to continue to serve you !

Torsten Reckert

President - all4-PCB (North America) Inc.