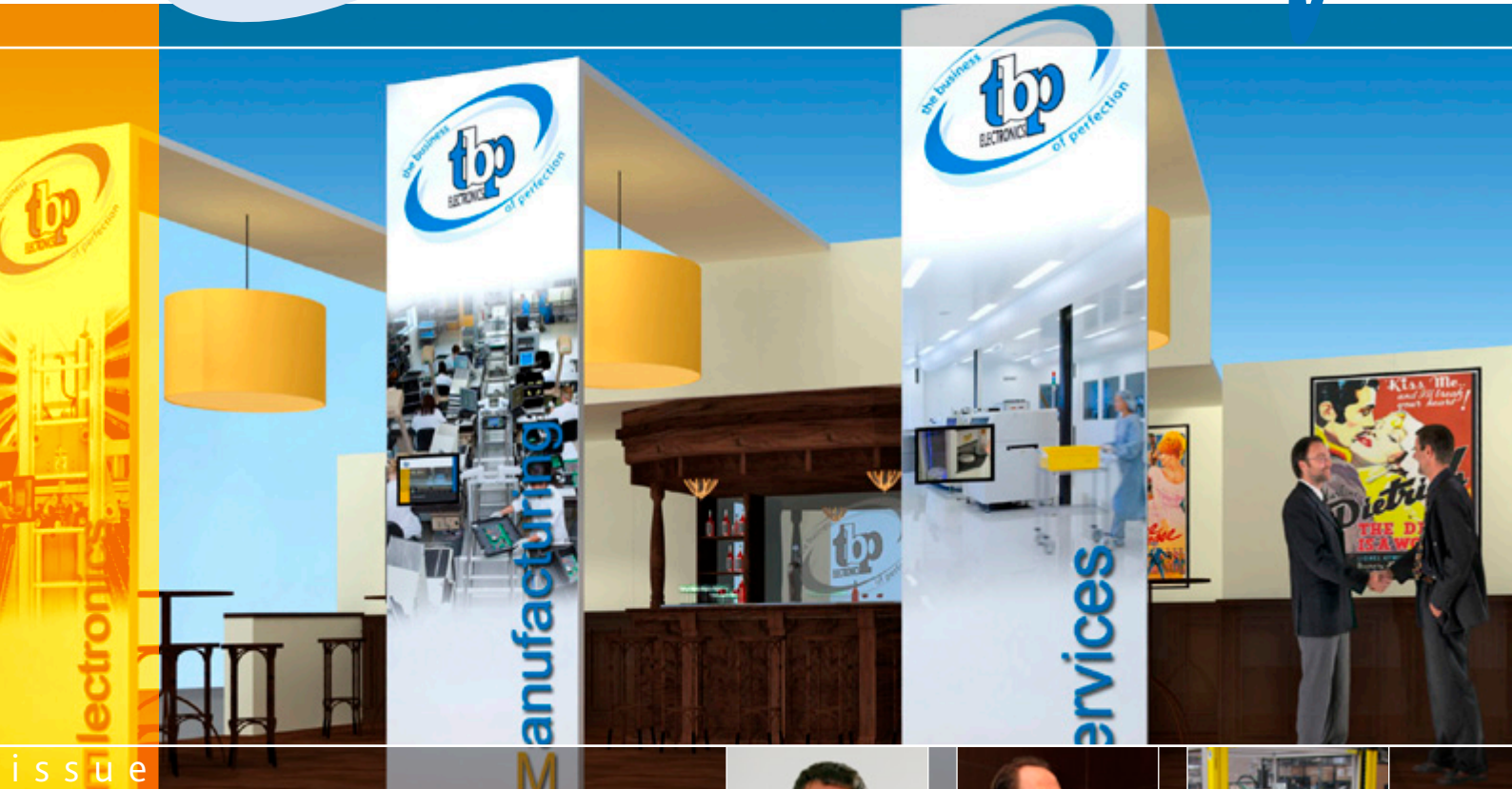




# WAY of life



issue  
**30**  
Sept. 2010





# hello new world

*Because what is certainly clear is that the frequency and amplitude of the recessions are going to increase. This also means that the government, municipalities, unions, personnel, contractors, suppliers, and banks will have to adapt to the new world. The new world expects companies to swing 0 to 100% with short ramp-up and down-turn times. And to do this at market-level prices of course...*

*We all know that flexibility costs money, and the EMS sector (Electronics Manufacturing Services) is no exception. So an approach that deviates from market standard comes as no surprise to us. After all, the costs will have to be covered one way or another. This is certainly evident by the different approach large clients have with respect to their suppliers.*

*Many cost saving projects are at a standstill; collaboration, delivery performance, and added-value are becoming key factors.*

*Nevertheless, tbp has started expanding again by investing in people, resources, and systems. Just as you have come to expect from us through the years. We would like to welcome you to our new world!*

**Ton Plooy**  
CEO

*The business world is starting to come around for some people, but no one knows for how long. It's all pretty fragile still. Everybody knows meanwhile that things can get a lot worse than we could ever have imagined; even banks can go broke.*

*So figuring out if you should be completely committed to the recent recovery is a difficult decision to make, since many companies have had to downsize on people, resources, and locations, to stay alive. This has obviously cost a lot of money. So you probably think at least a dozen times before you decide to reinvest the money you don't really have any more and probably won't get from the banks either. We therefore have to develop a different kind of organisation than what we used to have, one that can handle and anticipate the new way of doing business.*



## colophon

### postal address

tbp electronics bv  
P.O. box 8  
3247 ZG Dirksland  
T +31 (0)187 602744  
F +31 (0)187 603497  
E info@tbp.nl  
I www.tbp.eu

### Offices

Vlaktbodem 10 • 3247 CP Dirksland (NL)  
Bell Telephonelaan 3 • B-2440 Geel (B)

### editorial office

Dana Wolters (info@tbp.nl)

### copy & photography

Frans Witkamp, NASA

### design

Peter Walschots & Grafisch Bedrijf Hontelé

### print work

Grafisch Bedrijf Hontelé

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# spotlight on the 2010 LED event

The FHI is organising the upcoming LED event at the Evoluon in Eindhoven on 23 November. Under the motto "from component to application" visitors will become acquainted with the many possibilities this modern-day source of light has to offer. Even though the exposition and lecture programs will not be finalised by the time this issue of Way of Life goes to print, it promises to be an interesting programme. The focus of the programme revolves around three topics: quality (the basic function in the product life cycle), intelligence (the added value/systems), and expertise (testing procedures, thermal control, and EMC/electromagnetic compatibility).

## led gains more ground

The first led applications in the seventies were limited to indicator functions on devices or instruments. The quantity of light emanated was limited and this prevented the development of other applications. But technology has changed radically over the last decade. The led has turned now out to be a powerful light source and this has created a myriad of new applications. Not only has the led light been gaining ground as a source of light in both home and office applications, but architects and artists have been putting them to good use as well. One of the main reasons for this is the energy saving properties, although size also makes the led suitable for special applications. So there's work to be done amongst the electronics suppliers! Designers are coming up with new applications- and the systems to run them.

They can be found in all branches: theatre stages, street lighting, automotive industry, agriculture, advertising, interiors,

labour factor for both testing as well as assembly. In other words: a high quality product and a best buy to boot!

*create led applications, build electronics*

etc. The possibilities seem to have no boundaries and the regional manufacturing industry is on hand to produce it.

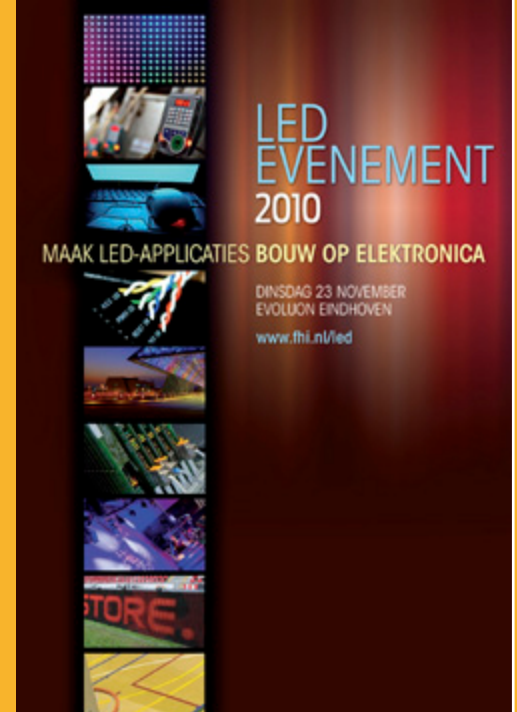
## tbp joins in

All the more reason for tbp electronics to make a contribution to this event. Kris Meeus, the engineering manager of Co engineering and Test engineering at tbp electronics Belgium will give a presentation about "skilful and wilful assembling". He will also point out the importance of bringing the designer and manufacturer together during an early design stage of a project. If both parties do their work properly, we can reduce the

## are you in?

Have we sparked enough of an interested for you to visit the Evoluon yet? Visit [www.fhi.nl/led](http://www.fhi.nl/led) for more information. Admission is free of charge.

*LED = Light Emitting Diode*



## contents

- |    |                                      |    |                                      |
|----|--------------------------------------|----|--------------------------------------|
| 2  | column                               | 11 | improved work climate in Dirksland   |
| 3  | spotlight on the 2010 LED event      | 12 | tois: the ongoing improvement system |
| 4  | change the world                     | 13 | the best at sorting effectively      |
| 4  | teamwork in knowledge and skill      | 14 | art at Dirksland                     |
| 6  | Techno-tbp                           | 15 | machine park expanded once again     |
| 8  | Grand Café on tour                   | 16 | Perlex for increased traffic safety  |
| 10 | working towards the paperless office |    |                                      |



## VERANDERDE WERELD

HR NA DE RECESSIE: BUSINESS AS USUAL OF ECHE VERNIEUWING?

19, 20 EN 21 MEI 2010

HOTEL KEMPINSKI PALACE PORTOROZ\*\*\*\*, SLOVENIJE

HRMagazine



Exciting topic at HR conference

# change the world

Good personnel determine the success of an enterprise. An open door you might think, but many factors surrounding this concept require some attention. For instance, how are you perceived by shareholders, what kind of leadership is required of you, how do you communicate with available talent, and what are the social consequences? These are just a few issues that affect not only tbp, but companies worldwide as well.

The Belgian magazine on human resources, HR magazine, organised a three-day conference in Slovenia recently featuring several topics from the world of human resources. The twelfth edition of this annual conference drew 137 HR professionals to the Slovenian resort town of Portoroz, located near the Croatian border on the Adriatic shore. The Slovenian Minister of Labour, Family, and Social Affairs Ivan Svetlik emphasised the importance of this conference by welcoming the conference attendees on the first day.

The theme selected by conference chairman Jan van Acoleyen (chief HR officer at Barco) was: change the world. That was enough to spark discussions and questions about how people are communicating with each other as a result of the crisis. Are there any differences or similarities internationally?

tbp also contributed to the programme by way of a presentation given by COO Anton Hermus, who shared what it was like to face the enormous challenges and changes caused by crises, and the flexibility demanded of organisations as a result. The EMS sector has had to make an ongoing effort, and companies who innovate timely by adjusting their industrial processes and organisation are laying the foundation for the future.

The collaboration between clients or with various disciplines – take Techno-tbp, for instance (see page 6) – is what keeps clients from emigrating to the low-labour countries. Exiting topics for discussion at the HR conference were forms of leadership, managing complex change processes, and developing teamwork amongst several companies.

Additional speakers were, amongst others, trendwatcher Fons van Dijck, businessman Herman Nijns from Randstad, Frank Catteeuw from Jansen Pharmacie, and Jef Colruyt from the Colruyt chain.

The next conference is scheduled to take place on 25 to 27 May 2011 in Prague (Czech Republic).

# teamwork in knowledge and skill



*Skill. What does this word actually imply? The official description as given by the Oxford dictionary describes it as 'the ability to do something well'. You use your skills with the knowledge you have. Anton Hermus: "Knowledge alone won't keep the economy afloat; our added value increases when we employ a more practical approach. The Western Europe or Benelux knowledge countries encourage innovation, but the situation won't change if the investments in product innovation are (too) few. Particularly the government seems to have little interest for anything concerning the manufacturing industry. I'm am firmly convinced that this is a missed opportunity, and we should make a concerted effort to bring this to the fore and change the tides."*

#### abroad

We've seen a lot of manufacturing work disappear abroad over the last decade. Asian countries in particular—with their low labour costs—took good advantage of this. The percentage lies around 80% for the EMS sector (Electronics Manufacturing Services). Not only labour costs drove companies out of the country, but so did an increased need to sell "fabless" products. Large industries were happy to farm out their bulk production to the specialised electronics companies in Asia and Eastern Europe. What's more, factors like the environment and working conditions were becoming increasingly critical. Outsourcing became common property.

#### crises

Aside from the exodus of manufacturing work to countries abroad, numerous crises also affected the stagnating economy. The Telecom companies—after issuing expensive UMTS licenses—got hit hard in 2002 when the Telecom bubble burst as a result of faltering supply chain processes. The financial bank crisis and even incidents like 11 September and the deaths of Theo van Gogh and Pim Fortuyn have had a direct influence on consumer confidence. A drop translates directly into stagnating sales numbers and a subsequent decrease in production. Uncertainties like the price of oil, the dollar rate, and the threat of war only contribute to the downward spiral. We are now confronted with a component crisis; scarcity and increasing delivery times surpassing 20 weeks have drawn special attention to issues like inventory management and cash management.

#### change the tides

Anton feels he can give the economy a boost by implementing innovative measures: "Knowledge is a hot topic in our country. We talk about the value of good education. It would also be a good idea to talk about how we can improve production, be more innovative, and find ways to do this as efficiently as possible. Knowledge of manufacturing. Ergo, knowledge and skill." tbp is constantly working on perfecting the manufacturing processes. 'Cost reduction' and 'error elimination' are key concepts around here. Efficient manufacturing does require close collaboration with the client. This means that the manufacturer should be already be thinking along with the designer during the creative phase. This outcome is a better product at a lower price. This does, of course, raise questions. The trust between client and manufacturer is paramount, but it does not lend itself for translation into watertight and legal agreements. Nevertheless, good synergy will eventually bear good fruit.

There are great opportunities available to the EMS industry. Anton: "There's certainly no harm in promoting the 'made in the Benelux' idea. Let's all make a concerted effort to give the manufacturing industry the opportunities it deserves."

*The electronics magazine "Bits&Chips" organised the so-called Hardware Conference at the Evoluon in Eindhoven on 17 June 2010. About 250 people – mostly men – active in the world of electronics participated in several concurrent sessions dedicated to the fields of FPGAs, chip design, hardware, PLM (Product Lifecycle Management)/RoHS, and the latest trends in the EMS world. Anton Hermus, COO of tbp electronics Belgium used this platform to draw a picture of the influences affecting the EMS industry, and noted that more attention to manufacturing would help this country out of its economic crisis.*

*RoHS = Restriction of Hazardous Substances*





CEO of Technolution Jan van der Wel signs the contract establishing Techno-tbp.

# Techno-tbp a new contact point for the OEM market

*Techno-tbp vof is the name of the new collaborative effort between developer Technolution and electronics manufacturer tbp electronics. This undertaking was born out of the demand from especially Original Equipment Manufacturers (OEM), who are keen on working with a third party when it concerns filling their electronic needs. OEM companies are increasingly interested in doing business with one (turnkey) supplier who can keep the entire chain – from idea to (sub)product – transparent and efficient.*

*The collaboration between tbp and Technolution came about rather naturally as a result of the the long-standing relationship they have enjoyed through the years. Ate de Vries, program manager at Technolution, saw the writing on the wall: "OEMs want to focus on their core business, and issues–like designing and building–that fall beyond those areas are relegated to third parties who relieve them of this responsibility. Look... synergy is achieved through real collaboration!" Each party within this collaborative effort has their specific responsibilities, and the OEMs have just one contact point. The collaboration is right in line with the philosophy Toon Plooy has been proclaiming for years: "Let manufacturers and designers work on projects together. The power behind Techno-tbp goes even beyond the sum of the individual companies, and this translates into the best possible end product." The introduction Techno-tbp was favourably received by both small and large volume OEM companies.*



### one counter

OEM clients are constantly looking to do more with fewer subcontractors. They are moving away from the "multiple party strategy" and giving a single party more responsibility. That party is wholly responsible for the design, manufacture, and delivery of the product. What's more, OEMs are realising that their products require maintenance, and maintenance occasionally requires the involvement of both designers and manufacturers. Designers and manufacturers get to meet again when design specifications change or when certain components become obsolete. Moreover, the Techno-tbp collaboration makes the cash flow more visible and manageable for the OEMs. The fact that the new company could be given full responsibility from design to end product appeals to one's imagination. OEMs responded very favourably to a short survey about the non-exclusive collaborative effort between tbp and Technolution. The significant advantages of Techno-tbp being a portal to one design/manufacturing company are very clear to them.

### teamwork promotes quality

We have known for years now that the end result of good teamwork between designer and manufacturer is a better product. That has everything to do with the possibilities or limitations of the manufacturing process, and something that designers have to keep an eye on. In other words: you can optimise reproducibility by taking certain aspects of test and production implementation into account during an early stage of the design process. In practice, this means that teamwork manifests itself around two core concepts: DfT (Design for Testability) and DfM (Design for Manufacturing). The quality of the product and the manufacturing process can also be determined by employing a specific test strategy. The

eventual method employed is dependent on numerous secondary factors, like the complexity of the switching and the production volume. Seeing as the manufacturer is more knowledgeable about his test methods than anybody else, this can only reaffirm the usefulness of good teamwork.

Another added benefit: the one counter concept also applies if after some time a delivered product no longer meets requirements. Any discussions between designer and manufacturer can take place without involving the OEM.

### extensive integration

The next step a client can undertake is to have several (sub)products assembled by one party, e.g., into racks or modules. This form of vertical integration relieves the OEM of even more responsibility, as having the manufacturer deliver the completed unit (tested and all) represents a savings in time and effort. Theoretically, you could probably go as far as to have the client deliver his modularly assembled products to his test and integration group on demand, where engineers would continue to assemble these into the machines and make them operational. In the future, the OEMs themselves will not have manufacturing facilities. They will limit themselves to integration and testing, and will deliver "fables" products.



*CEO of tbp electronics Ton Plooy places his signature on the contract establishing Techno-tbp.*

# Grand Café on tour



We already announced that *tbp electronics* would attend HET instrument 2010 in our previous issue of "Way of Life". Reason enough to visit this exiting event dedicated to our sector. Organiser FHI is making every effort to make your visit to the exhibition a pleasurable one. Be sure to visit our booth number 4C039. Come and enjoy the pleasant atmosphere, visit with our people, and exchange views while enjoying a snack and a drink. Our Grand Café has all of the above to offer. To pick up on the exhibition theme: doesn't that sound like music to your ears? One more tip if you enjoy beer: ask for our special beer straight from the tap! Together with our neighbouring booth holder Eurocircuits, we will have two types of Belgian beer available: La Chouffe (a relatively new kind of beer) and the very popular De Koninck beer from Antwerp, served in a "bolleke". The tasty Duvel will be served as well, but in a bottle.

#### free public transportation for all visitors

Free public transportation to and from the Amsterdam RAI is available to all HET Instrument visitors this year. During exhibition days, you can travel second class to the RAI and back from any train station in the Netherlands. You can make use of the Amsterdam metro, tram, and/or GVB (night)bus. No traffic, no parking fees, and a significant improvement in accessibility; those are the advantages exhibitors are sharing with relations they are inviting the exhibition.

#### admission ticket

Do you still need an admission ticket to the HET Instrument event? Then don't delay and register on the *tbp electronics* website ([www.tbp.eu](http://www.tbp.eu)). You can pre-register by clicking on the corresponding link under the "latest news" header. The exhibition is opened:

- from Tuesday 28 September to Thursday 30 September from 11.00 - 19.30 hours;
- on Friday 1 October from 10.30 to 16.00 hours.





### the sound gadget

You probably already know by now: no gadget from the Live PIL (Production Integration Line) this time, but a ready-to-go unit that will guide you effortlessly through the exhibition. The gadget contains electronics that interacts with previously selected booths when approaching them. These booths will know you are coming. By registering, visitors will receive a digital tone which will be stored in the gadget. A melody will be composed when collecting several of these tones. Visitors completing this melody will be in contention for a prize.

For the techies amongst you: a 2.4 GHz range transceiver in the gadget is what makes the wireless connection, and the MSP430 TI controller operates the transceiver in the gadget.

### innovations for the quality of life

The Development Club pavilion, an association of developers, is displaying current developments that serve to optimise the quality of life. For instance, increasingly efficient energy systems, or methods to integrate playing and learning. You can observe all of the above.

Are you interested in automotive developments and sustainable mobility? The go to the TesttechnologyPavilion. You will find two examples: the Greenchoice Forze of the Delft Formula Zero team, and an electric car from Han Automotive. The future of sustainable mobility is being developed as we speak, and so we are quick to ask the question: what is the return? This question applies to the generation, distribution, and use of energy when it comes to new types of mobility. These tests give you an inside look.

### more...

There is so much going on at the exhibition. Backstage Tours, a LiveLAB, Build Your Own Plant, Build Your Own Robot, a sensor tour, the sound gadget tour, and test demos where you can win a weekend driving a Lotus. Aside from entertainment is also serious business, of course. The conference programme offers many interesting topics. You will find scientific posters on the exhibition floor, and debates on improving industry returns have been scheduled. Briefly said, do not miss this event.

*www.hetinstrument.nl has all the ins and outs. Visit [www.tbp.eu](http://www.tbp.eu) and check out "the sound of technology" under the latest news header for free admission.*



### electronica 2010

Are you planning on visiting the electronica 2010 in the Neue Messe in Munich? The exhibition will be bristling with electronics activities from Tuesday 9 until Friday 21 November. Make sure to go if you can. This exhibition offers a very wide diversity of areas of attention. From idea and design to manufacturing and application; it's got it all. tbp will also be attending this exhibition and has a booth. You are, of course, cordially invited to visit us at our cosy bar at booth B1.411. Here too, your admission ticket gives you free access to public transportation. Herzlich willkommen!





# working towards the paperless office

*George A. Pake of the Palo Alto Research Center (PARC) and head of the Xerox development department predicted the paperless office even before the introduction of the personal computer early in the early eighties. He envisioned how in 1995, documents would magically appear on a screen with the push of a button. Although his ideas seemed realistic, he would be proven wrong. Despite all the technological development producing the most advanced document scanners to date, not one company has been able to reduce the paper flow to zero. On paper, the paperless office seems doable, but practice proves otherwise. Hard numbers still show an increase in printer use – and general paper use – despite the fact that document digitalisation is being increasingly implemented in offices today. The workload for multifunctional printers and scanners continues to rise.*

Although the paperless office might seem to be the ultimate goal at this point, it is an unattainable goal for the time being. This does involve certain psychological factors.

Paper is easier to read, and taking notes on paper is a simple task. What's more, some information is just more readily available on paper, while other information is not. "It would be great if we could reduce the paper flow at tbp to half of what it is. A major undertaking!" says Rotterdam University informatics graduate Rolf Nagtzaam upon looking into possibilities on reducing the paper flow. tbp already made attempts some time ago to digitalise the information flow whenever possible. Unfortunately, these failed for a number of reasons. Now Rolf is breathing new life into this project. Moreover, he and three other colleagues are working on a joint graduate project that studies both the technical and business aspects of the matter.

## DMS

The graduation paper consists of implementation of the so-called DMS (Document Management System). This system is designed to reduce the paper flow in companies. What it means in practice, is that it will no longer be necessary to physically store proposals, invoices, store requisitions, orders, etc. The eventual goal is to funnel all of the information flow into one system and link it to the ERP system.

The first step: a thorough stock-taking of the information flow in the company. Step two: selecting the appropriate software package for proper management of all the information flow. Seeing as tbp already gotten this far previously, further research will be done to verify the suitability of the existing package. Step three: establishing work procedures. Rolf: "Part of my graduation paper involves mapping out procedures for the different kinds of information flow by the end of February 2011. tbp can then select the right DMS supplier. Two kinds of information flow should be classified by years end if all goes well, and the initial results should start to take shape."

## complicated

It's not so hard: scan every document and store it in a database. Just look it up if you need it again. Practice reveals that this just doesn't work. By far most of the documents are related to other documents and that makes managing (establishing mutual relations) these documents one big puzzle. Considerable attention must be given to authenticity to boot. Are there any guarantees for authenticity? Governmental authorities like the tax office rightfully apply stringent conditions for this, meaning DMS certification is required. Options for authorisation and links to other procedures within the company must be inserted. In short: a very complicated set-up. Burrowing your way out this maze of information is an enormous undertaking. A real challenge according to Rolf, but one he is ready to latch on to!



tbp electronics

Rolf Nagtzaam, application specialist.



# improved work climate at Dirksland

*No one will contradict the fact that climate can influence the well being of people and how they function. Excessively high ambient temperatures can make conditions very uncomfortable for personnel and hurt production. Similar conditions have caused machinery to fail in the past. It became apparent that the anticipated objectives with respect to the indoor climate were not realised when the Dirksland building was completed a few years ago. Workstation temperatures in the production area occasionally reached thirty degrees centigrade during the summer. The improperly adjusted insulation value also brought complaints from people with respect to draught. In short, time to call in the expert and bring about improvement of the situation.*



## CLIMATE CONTROL®

car park ventilation systems  
industrie, marine & offshore  
service & onderhoud

### taking inventory

That expertise was found at Climate control. A company whose roots just happen coincide with those of tbp electronics and their start-up in Stellendam. Climate Control is a specialist in the field of climate control, particularly on improving current work climates. Specialists ran an analysis in order to suss out the situation and presented a report

based on their findings. This showed that the current system was not performing up to par in several areas. The production area was producing more heat than initially assumed. The isolation values of partitions and walls fell short of expectations as well. This—compounded by the heat generated by sun infiltration (external heat)—became the basis for an undesirable work climate.

It seems that the current system—installed by several contractors back then—was performed incorrectly and was in fact already obsolete in some areas. Altogether more than enough reason to designate this problem as urgent.

### improvement

The report presented in 2009 included recommendations for improvement. The recommendations appeared to produce a win-win situation: a modification of the current system on the one hand (upgrade), and an expansion creating a "state of the art" system on the other hand. Even though the work involved required making the necessary investments, the savings in energy should recoup this in the long term. More difficult to express monetarily is the significant benefit of the improved work climate. Another obvious and contemporary benefit achieved is that the system was made more environmentally friendly. This was achieved, amongst others, by installing heat pumps. This even resulted in a government subsidy because we reduced CO<sub>2</sub> emissions. The heat pumps – whose operation can be likened to those a refrigerator – convert heat into cooling (and visa versa) and enable excess heat in one area to be transferred to another area where the temperature is too low. The result is that the production area is compliant with present-day requirements for the work climate, whereby all production workers feel a whole lot better as well.

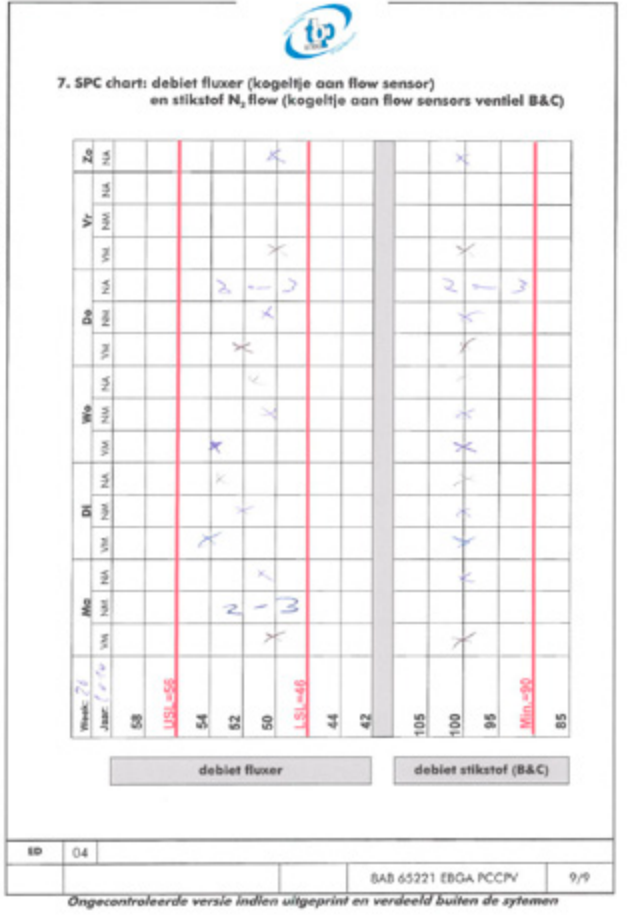
### ClimateControl

ClimateControl is a commercial engineering company. The company is turnkey-based and its projects are dedicated to creating responsible labour conditions whereby people and processes can function optimally while respecting the environment. Turnkey means to say that the contractor is responsible for all work activity from design to delivery, meaning the entire construction process.

ClimateControl, Spijkenisse,  
I [www.climatecontrol.nl](http://www.climatecontrol.nl)



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The wave solder process control card.  
 A measurement used to maintain the level of the solder bath between two lines.

**smed**

Production changes always require a changeover of machinery settings. It goes without saying that we strive to limit these changeovers whenever possible and/or to keep them a brief as possible. To that end, the project team applies a method called SMED (Single Minute Exchange of Die). Team members wasted no time in finding an appropriate acronym after being introduced to the method. According to the general theory, a SMED changeover should take no more than ten minutes. The concept is now being applied on two of the Fuji NXT lines. This way of working smarter has already made the benefits clearly visible.

**3h factory**

A sizeable challenge: manufacture specific high-runner products within a three-hour production window. We understand this window to be the time between the collection of the components to the first packaging of the product. Several notable advantages:

- potential errors are immediately visible, prompt response action prevents nasty consequences;
- simple planning - improved overview;
- a predictable output rhythm.

**6-sigma**

The basic philosophy of 6-sigma can be compared to driving a car. To make sure you don't run off into the water, you drive in between the white lines and stay in your lane. You're fine as long as you stay inside the lines. We're looking for those white lines on every technical project we undertake. The machine operator runs checks at regular intervals and records the results on a quality control chart. As long as we stay in between these lines, we know the process is running smoothly and error-free.

This approach allows us to discover when things go wrong at an early stage. Normally, errors are noticed only when indicated by a test. Repairs to correct problems after ascertaining them are usually rather costly.

A perfect example of 6-sigma was achieved with the wave solder bath. Since the introduction of sigma-6, the number of errors have been reduced to a factor five!

Tois remains perceptible in all sections within the company. Once again employees experience that the needs of the client are met through their collective efforts.

# tois: the ongoing improvement system

We use Way of Life regularly to share about what tbp is doing to bring the quality of the production process to perfection. Tois (tbp operations improvement system) is the common denominator under which all of these improvement processes are classified. A concerted effort is made daily to develop and implement these improvements. The fruit of these efforts is clear: the client gets a better product at a better price.

**5S**

The 5S method comes from the Japanese ideology of a well-organised workstation. Optimal implementation of 5S can prevent wastage and lay the foundation to attain the highest quality possible. 5S stands for five steps, each step beginning with an S: Seiri, Seiton, Seisō, Seiketsu, and Shitsuke. In English: Separating, Sorting, Cleaning, Standardising, and Systematising. The work floor is divided into different zones in Geel. Each zone performs the different 5S steps at their own tempo. A weekly check is performed once a zone has reached a certain level. One of the first steps was to establish a "lost&found" zone. In this zone, everyone can dump anything they no longer need at their workstation. After a while, the person responsible for this zone, decides what can still be used and what should be removed.



# the best at sorting effectively



GETS EVERYTHING SORTED

*BEST, the acronym for Belgian Electronic Sorting Technology, is a Belgian company specialising in optic sorting. Optic sorting employs camera, laser, LED, and X-ray technology or a combination of all of the above. The company provides systems that remove foreign objects, defects, or discolouring produce in the food industry (vegetables, fruit, potatoes, nuts, etc.) Other applications are found in the tobacco and recycling industries.*

*BEST offers sorting solutions for every stage of the production line. The version employed will depend on the type of product, the local circumstances, the condition of the product, the specific defects that must be removed, capacity, and the budget available to the client. BEST is continuously investing in finding ways to develop innovative solutions to ensure the quality of the base material in the various stages of the production process, and to improve the efficiency of production lines.*

## getting started

The first BEST laser sorting machine was built in 1996 and was installed at the customer's for the purpose of removing foreign objects from raisins. An exceptional feat, since foreign objects amongst raisins are especially difficult to detect. The door to success opened wide. The thought was: "If we can sort raisins, we can take on just about anything." Today, potatoes, nuts, vegetables, and fruit run through sorting machines on a daily basis in more than 50 countries. BEST is the market leader in high-tech sorting solutions. Research & Development therefore plays an essential role in their business management. They are continuously in search of the latest technology to continue playing that role. Sorting is a specialised skill. "The ability to detect the shape and colour agricultural products requires quite a bit of technology", says Jeroen Knol, Managing Director of BEST Eindhoven BV. "Take the French

fry maker, for instance. Potatoes are washed as soon as they enter the factory. Oftentimes after washing, a laser and/or camera sorting device is used to detect foreign objects and potatoes exhibiting more than 50% of rotten surfaces. They then run through a cutter that shapes them into French fries. After the cutter, another optical camera and/or laser machine is used to detect rotten spots measuring more than two millimetres, foreign objects, and abnormal shapes. The widest sorting device processes a maximum of 25 Tons of French fries per hour and sees to it that a 98% perfect end product continues on in the production line. BEST can also provide laser sorting devices that can inspect products for items like bolts, plastics, and the like just before packaging. X-ray equipment used to check for foreign objects like metal, glass, and the like in already packaged items also belongs amongst the wide range of sorters. Our machines do contain a tremendous amount of mechanically and pneumatically operated elements. But the core element is in the electronics of course, and we develop all that in-house."

## outsourcing

Production designs are subcontracted to third parties. "In 2003, we decided to do some research to find a suitable supplier/partner who communicates openly, speaks the same language as BEST, has the same technology, and who can keep up with our growth potential. That's how we wound up at Alcatel in Geel. We immediately knew we had come to the right place. An EMS company that thinks along with the client and his needs", says Jeroen Knol. That first impression has only been reaffirmed throughout the years. "Even now with the tbp electronics name on display on the wall, our experiences are nothing but positive. We have a 0% drop-off rate, short communication lines, we honour our commitments, and deliveries take place as agreed upon. It appears that the RMA procedures (Return Material Authorisation) are being followed-up properly as well. That makes tbp the perfect partner", adds Jeroen. In principle, the engineers at BEST design all the electronics they need; they are

occasionally supported by specialised design offices. There is no direct involvement with respect to the design from the manufacturer as yet. Jeroen: "We know quality can be improved if options for testing are taken into account in the design phase." It should only be a matter of time before we expand our services to include support during the design phase.

In any case, there's work to be done. At least 120 machines will leave the Eindhoven factory this year. They will be placed in locations around the globe.

## growth

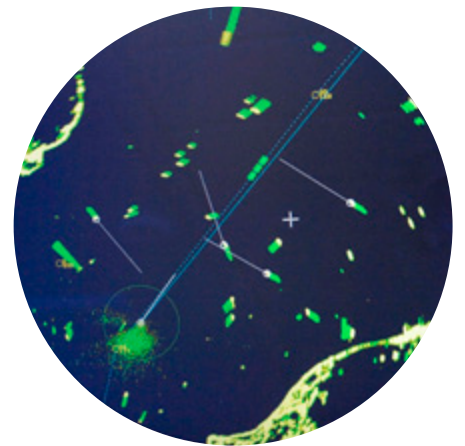
Started as four-man business in 1996, this company has now grown from being a garage operated business into one that operates worldwide, with its main office located in Leuven and branch offices in Eindhoven, Spain, the USA, and Hong Kong. The factory in the United States recently announced its plans for expansion. There are investment plans for offices in Turkey, China, and Japan. BEST strives to achieve a 15% increase in revenue annually. Worldwide sales amounted to about 250 machines last year, equalling revenue of 50 million Euros. The goal they set for themselves: they plan to double this revenue in five years.

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46°45'N 06°48'W 528  
(Dover Strait)



## Telling stories with photos



Vlaardingen resident Eric van Straaten exposes his work on the walls of the art gallery in the Dirksland building. Photos that are characterised by

simplicity, but if you ask him, they tell a story and bring to mind the Chinese proverb that says *a picture says more than a thousand words*.

Originally from Rotterdam, photography was always on his mind during his younger years at school. Eric: "I was fascinated by the way images came to life when the exposed photographic paper was laid in the developer under the dim red light in the darkroom. Admittedly, it's all about technology but you can build a great story around it". Although he initially chose to study instrument making, he was quick to switch over to taking courses at the school for professional photography in Apeldoorn. After getting his degree in 1980, he established himself as photographer by pulling in various assignments, but could also find pleasure by working independently. All of his works have a beauty about them.

It's not just his technique or compositions that account for his success, but more his interpretation of how he registers objects. What he really wants, is to tell a story with his photos. In fact, whether the object is a landscape or an industrial product is of no concern to him, as he was commissioned by the Ministry of Culture, Recreation, and Social Welfare back then to take a year and photograph all the industrial landscapes in our country. In sharp contrast to this is a series of landscape photos of the waterway connection between Rotterdam and Budapest.

He has a great fascination for taking pictures while at sea. Water and air are his leading protagonists when photographing at sea from either his sailing boat or a container ship. "The best way to look at these photos, is to make large prints and observe them from an appropriate distance", suggests Eric. "Many of these photos have the horizon right in the middle, with the air above and sea below. That's it. That leaves only the colour of the water and type of sky as the all-encompassing factors that determine the character of the photos. The geographical position, date, and time are always included in the title; this is how it was at that time and at that location. You could say: it looks all so familiar, because it was like that before as well. My point exactly. Large images without eye catching details alluding to a preconceived concept or

design, but displaying a crispness down to the most minute detail. This is what gives the observer the best image, a realistic impression."

Aside from teaching at the Willem de Kooning Academy in Rotterdam, Eric sits on several municipal commissions that advise on art in general and art in public areas, amongst which, in the Schiedam and Pijnacker-Nootdorp municipalities. The Eric van Straaten website also has an impressive overview of the projects he can lay claim to.

Eric van Straaten, Oosthavenkade 16b  
3134 NV Vlaardingen, T: 010 4601770  
I: [www.ericvanstraaten.nl](http://www.ericvanstraaten.nl)  
E: [info@ericvanstraaten.nl](mailto:info@ericvanstraaten.nl)





# machine park expanded once again



Hot-bar soldering makes joining our own flexible prints easy.

*Considerable investments have once again been made in manufacturing equipment this year. We recently installed two new machines to further optimise the entire production process. One of these is the Radial Lead Inserter for component placement, and the other is a special soldering machine to interconnect flexible prints on a printed circuit board.*

## component placement

For years now, the so-called pick-and-place machines are used to place components on printed circuit boards (PCBs) prior to soldering. Components like resistors, condensers, and LEDs come in many different sizes and shapes. In the old days, most components had (tinned) copper wiring on both ends; these were designated as axial components. It's true that the so-called "wireless" Surface Mounted Devices (SMDs) have become quite commonplace in recent years, but the conventional radial and axial types are still being used abundantly. Not only in existing products but in new ones as well. Naturally, a mixture of both happens too. The American machine builder Universal Instruments has been building machines for the printed circuit market for more than 40 years. The Radial 8XT machine purchased

by tbp is an exceptional machine. The builder has managed to design a machine that can place 21.000 components in one hour. Convert that and you get a placement every 0.17 seconds! Another amazing feat is that the components can be placed at any angle. It can place up to 60 different components at a time. The fully automated machine grabs the printed circuit boards from the magazine racks before starting the placement process, and puts them back after completing the process.

Other notable advantages are the high reliability factor and the low energy consumption.

Specialists take note: the machine is capable of placing components at widths (distance between wires) of 2,54, 5.08, and 7.62 mm (1, 2, and 3 Module, and 1 Module = 0.1 inch).

The machine has been in service since the summer and has already been proven useful.

## hot-bar soldering

The other new machine is the hot-bar soldering machine which was built to tbp Geel specifications by Miyachi Unitek in Helmond. Hot-bar or "thermode" bonding, if you will, is a technology where both pressure and temperature are required simultaneously during assembly. For example, when soldering flexible PCBs and

cables on PBAs (printed board assemblies) and displays, and when forming either electrically or thermally conducting glue joints. This technology is even used to bond chips and ceramic components.

In principle, a thermode is not much more than a specifically shaped plate through which an enormous amount of current is applied—somewhere between tens and hundreds of amperes—to heat the plate. The advantage being that the heat can be generated very quickly and precisely. The entire heating and cooling cycle is programmable in time and temperatures ranging between 40°C to 600°C. There are many standard-shaped thermodes, but a specific design is usually required to meet application specifications. For instance, the thermode being used in Geel has 50 tips. This means that 50 points must be soldered simultaneously so a flexible PCB with a total of 100 soldering points can be assembled in two steps and in less than two minutes with a high degree of reliability. Hot-bars are not machine-specific, which means that the same equipment can be used for different applications by simply changing the thermode.

The tbp-specification built machine has a moving card holder that automatically moves and aligns the PCB in accordance with the different process steps

The Radial 8XT can place more than five radial components with radial connections per second on a printed circuit board.



# Perlex for increased traffic safety

In the previous issue of *Way of Life*, we talked about a solution to drastically reduce the traffic toll with trucks. Inventor Freek Ton came up with a system to do just that. The Perlex system he developed in collaboration with the Delft University of Technology has now been fine-tuned to the point where it is ready for manufacturing.

## interest

The first functioning unit of the Perlex system was presented to the Ministry of Transport, public Works, and Water at the end of last year. The introduction was received with much enthusiasm, indicating that the future of the system was bright. Institutions like SWOV, TLN, and the Bicyclist's Union have also responded positively.

On 20 May 2010, Connekt and the Ministry of Traffic, Public Works, and Waterworks presented the first research results of the 'Blind spot Detection and Warning Systems' project. It shows that technology can help reduce the number of traffic victims. Several suppliers demonstrated the various systems available on the market currently. Naturally, Freek Ton was there as well: "PerLex came out on top. The response of the Ministry of Defense and Labour Inspection was very positive and they are considering implementing the system as soon as the first units become available. I am convinced that the product we've developed is the the right one. It will significantly increase the safety of vulnerable road users like bicyclists and pedestrians."



Freek Ton with the PerLex "antenna"

## the system

The detection system consists of an antenna that is fastened on the outside of a truck-trailer and a box located in the cabin of the truck-trailer. The antenna is actually a capacitive sensor that responds to biomass. An alarm signal is sent as soon as a living being comes within a metre of the antenna. One of the advantages of this technology is the fact that the system does not respond to things like street furniture. False alarms are therefore a rare occurrence. Because of the early warning against potential danger, the driver has enough time to take appropriate measures such as stopping or veering away.

The ever-popular Powerline system is used to keep the communication between the control box in the cabin and the sensor as simple as possible. This system is already in use on trucks (and aircraft) to convey information on the 24 volt electrical system. This means that both trucks and trailers can be combined arbitrarily; the system remains operational.

## on the market

Now that the first major presentation was successful, time to get down to "business". Freek Ton: "We've garnered quite a few contacts with the government institutions like the Ministry of Defence and carriers. Labour Inspection in Rotterdam is also very interested. The Rotterdam harbour experiences about 2.200 accidents annually. Perlex can make a significant contribution in reducing the number of accidents. All interested parties have said to want to implement the system as soon as possible. Safety above all. The problem is not relegated to the victims alone; truck drivers too, want to be rid of the risk of blind spot accidents."

And although a delivery forecast is probably still a bit premature at this point, Freek expects to sell about 1.000 systems this year. Considering the huge truck(-trailer) fleet in this country, this should be possible.

[www.perlex.nl](http://www.perlex.nl)