



# visie



edition

# 24

Nov 2007





## the x-factor

*Has tbp got the x-factor? We are working on it anyway. In addition to assembling products - having become a commodity of sorts - tbp is sparkling in the front-end as never before: new activities such as development, testing development and lay-out, all linked via CXInsight. And what to think of our new stockroom shuttle, which will offer much guarantees in traceability and FIFO?*

*Quality and warranty of quality as well are at the ready in a set program, the results of which will be open to you via our website. And last but not least: our very first supplier and customer days should not be forgotten, as they turned out to be a great success. First-class networking, informative and most of all informal and enjoyable. There is a certain amount of*

*creativity and emotion in daily business after all!*

*tbp is developing a lifestyle-formula of its own: One should want to belong as a client, employee and supplier. **Anyway**, tbp places its clients at the hub of things.*

*Is it possible that all this is creating the x-factor?*

*Ton Plooy  
CEO*

## colophon

### postal address

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

### editing

*Dana Wolters (info@tbp.nl)*

### copywriter

*redactie in techniek, Frans Witkamp*

### design

*Peter Walschots, Grafisch Bedrijf Hontelé*

### printer

*Grafisch Bedrijf Hontelé*

### Visiting addresses

Vlakkodem 10 • 3247 CP Dirksland (NI)  
Rietveldenweg 32f • 5222 AR Den Bosch (NI)  
Bell Telephonelaan 3 • B-2440 Geel (Belgium)

Visie is an edition by tbp electronics. This newsletter is distributed to tbp's relations. Reproduction, duplication or copying of articles is allowed only after consent of the editors.



home  
**Holland**

away  
**: Belgium**

result  
**1-1**

Since May 1<sup>st</sup>, five new flags have been hanging in front of the Geel building. Presently there are tbp establishments in Belgium and in The Netherlands and we want to present ourselves as "tbp group", as differences in culture are complimentary. tbp stands by a strongly customer-oriented organisation, derived from a multinational culture. Geel is in the full swing of change completely in line with tbp's strong spirit of enterprise - with 332 employees and on top

of that 60 flex-workers in non-stop production - to meet the demands of our clients even better. The new discipline tbp-development has come into being from it, which supplies hardware design and lay-out from Dirksland, supported by the Geel IT and testing of engineering activities.

Our clients will be interested in the unique processes in Dirksland such as conformal coating, micro-electronics and clean room.

We are one identity towards the market. Our clients in America, Germany, Sweden, Denmark, France, Ireland and obviously The Netherlands and Belgium specify tbp's new assembling-era. We are arranging over 600 million components on six Fujii-lines, for over 550,000 products annually. But in addition to these huge amounts, a new product is introduced in Geel daily. Box-building activities, cabinet construction and complete solutions for our clients are on the menu daily.

Investments based on uniformity are being tuned within tbp. Since May, we have invested considerably in SMT-capacity, in testing equipment and in the recently introduced Isah7.

Visie will elaborate on the new Five-year-plan in future editions, based on: a strong, full service customer-oriented tbp-organisation!

Anton Hermus  
COO

# contents

- 2 columns Ton Plooy & Anton Hermus
- 4 from design to PCB
- 6 catching up at the tbp supplier day and tbp customer day
- 10 automated logistic centre is taking off
- 12 keeping a finger on the pulse of design to end product
- 14 Barco keeps shedding a new light on the matter
- 15 art in Dirksland
- 15 Pink Ribbon
- 16 tbp exhibits itself



*Inspection of the PCB by  
Ronald de Lange in person*

## from design to PCB

*Recently, tbp electronics is the right place for support from the very start of your electronics' design!*

*Since last summer we have offered a new service in helping companies converting their ideas into ready-made electronics products. Embroidering on over 30 years of experience in the production of printed wiring boards, we have taken the initiative to set up a development department aptly named development. Manager development Ronald de Lange is moulding this service that perfectly links up to the rising need of EMS (Electronics Manufacturing Services).*



Ronald de Lange is developing the lay-out of a PCB at a working station.

Ronald about this: "Our clients often have questions or technical problems in the designing stage of their product. We offer them advice to get to a good solution. Sometimes, problems arise in the testing or end stage that could have been prevented easily at an early stage. We offer help here as well. All our experiences are now being combined within *development*".

#### development

Development, what exactly does it mean? Actually, this phenomenon can be divided into three parts: design engineering, test engineering and data preparation. Three English terms that ask for further explanation.

#### design engineering

When a manufacturer wants to design a specific product, the odds are that electronics will be applied these days. Depending on the situation this company will either make a design by its own or it will outsource this activity to a third party. The design stage begins. A schematic diagram can be set up by the demands stated and the specifications. This diagram shows all components functionally and neatly arranged so that the electronic engineer is able to fathom the effects. The next stage is the conversion of the schematic diagram into the print design. This action leads to the making of all sorts of digital files. Such as a list for the purchase of components, a file for the making of the PCB, a file for the arrangement of all components on the board, the generation of testing programs, etc.

#### test engineering

From the design process to the end product various control stages take place.

During and immediately after the design software tests whether the electronic circuit is meeting the expectations – the so-called simulation.

This is necessary before a print lay-out is made, as alterations at a later stage are always bringing about costs and are accounting for unwanted delays. Once the prototype is available, it will be subjected to extensive tests. This is done by means of testing programs such as Flying Probe, ICT, Boundary Scan, AOI, Functional Test and Burn-in. These are used to assess whether the intended product is meeting the specifications and with them the expectations.

#### data preparation and verification

And last but not least data preparation and verification. Data from existing clients who want to have PCBs assembled may be involved or data from one of our own designs by our design engineers. Tests take place whether the data supplied is meeting the high demands of tbp electronics. If deviations come forward, then advice and feedback to the client will be given.

In order to communicate smoothly between designer and production, we have formulated design regulations. These comprise for instance how production and testing machines should be directed. Most design regulations by far, which are applied nowadays, stem from IPC, the American institute that sets standards globally. tbp electronics as well has decided to take the IPC-standard as a basis. In practice, however, these standards appear not always to work out and meet our needs sufficiently. As tbp electronics considers quality of paramount importance, we have

decided to refine this IPC-standard by means of our own standards based on 30 years of experience in the field of assembling of PCBs. A well-known standard is IPC 7351 (a.k.a. IEC 617). tbp electronics has succeeded, due to this more extensive definition, to supply an even more reliable end product in a shorter processing time than products that have been produced based on this IPC-standard only.

#### one stop shop solution

As is always the case at tbp for the greater part of the processes, the entire trajectory between idea and end product (=PCB) via software.

This offers flexibility to a great extent, but requires much knowledge of various fields. Ronald thinks that in exactly this trajectory tbp electronics may show its new force. He is convinced that in the field of redesign - the making up-to-date of existing designs in accordance with the current technology – we can help out our clients together with carefully selected partners. Due to the fact that all disciplines are gathered under one roof, a successful result is close at hand. Despite the fact that publicity to this new activity has only been given since the tbp supplier day and tbp customer day, the first clients have presented themselves already and this means that in this field as well there exist the usual requirements. A good future for tbp's latest discipline development seems guaranteed!



[www.mentor.com](http://www.mentor.com)



[www.ansi.org](http://www.ansi.org)

# Catching up at the tbp supplier day and the tbp customer day



tbp electronics is in full swing! This year began with a fresh start in the new company building at Dirksland and continued with the expansion of the production capacity by acquiring the assembling facilities of Alcatel-Lucent at Belgian Geel. Ample reasons to catch up with both suppliers and clients about tbp's vision of the future. We organised two afternoons: on 16 October the so-called tbp supplier day and on 18 October the tbp customer day. The program contained various presentations on the business, a high-profile performance of a futurist and techno-trend watcher, a tour of the premises and concluding a network meeting with a cold and warm buffet in the Grand Café.



Ton Plooy, tbp's vision of the future

The Belgian/Dutch tbp-management pair Ton Plooy and Anton Hermus whetted their audience by playfully exposing differences and similarities between both establishments.

The match was a draw between Holland-Belgium! An interesting question rises: how does the future look like for both establishments? Your guess is my guess... Obviously, there are striking developments that affect our business. One can think of the price development of oil products, the rising value of the euro against the dollar and the shift of pure production from Europe to the Far East. However, about the latter: currently, there is some kind of reversal. The financial profit was the reason to look far away, but now quality requirements that are harder to meet seem to be dominating. Many European OEMs (Original Equipment Manufacturers) are deciding to source out their production closer to home due to communication problems, extra logistic trajectories and the lack of "being able to keep the finger on the pulse".

These gradual shifts are enabling a controlled growth of tbp electronics with a selected number of clients. In order to be able to serve the clients permanently, a continuous investment in technology will take place, as will be the recruitment of specialised and qualified employees. A checking factor that is present in many branches would be that it is difficult to find sufficiently qualified personnel. The location Dirksland will develop into a centre of knowledge of technology, the location Geel will develop into a production plant. For both suppliers and clients the future is looking bright.

#### **streamlining within the logistic trajectory**

Dirk Van der Borght (supply chain manager) and Hanneke van Wageningen (purchasing manager) got the opportunity to ventilate their vision on the logistics and the supply chain in their lecture "tbp the logistic way". One of the main problems in the production of PCBs is the availability of all components

components at the right moment (JIT: Just In Time). The period between order and end product is in general very limited. It is common practice that this period is only about 60 calendar days.

The lead time until production has to start after 45 days, if the end product is to be ready in time. In practice many suppliers cannot fulfil such delivery times and therefore a timely reservation is necessary. It appeared from measurements within tbp that of about 20,000 purchased parts that are used, only 30% of the total components needed was present. This inconvenient situation can only be improved by a careful (rolling) forecast and a good combined action with the client and supplier. In such cases the percentage rises above 95%. The remaining 5% should be reached with a combination of an improvement plan, early warnings, etc.



Anton Hermus, tbp's vision of the future



Dirk van der Borght, tbp the logistic way



Hanneke van Wageningen, tbp the logistic way

Clients are increasingly making higher demands with respect to full traceability of all components used. We have good reason to ask our suppliers to stick carefully to labelling (with barcodes) of the products to be supplied. Only this way we can meet our clients' demands. According to Van der Borgh and his colleagues purchase is more a question of organisation.

#### **development**

Since last August a new discipline within the organisation has been announced named development \*). Manager Ronald de Lange describes how this new department may be of use to clients in the development of a new product or the alterations to an existing product. At the beginning of the article "from design to PCB", you can read how you may profit from this new initiative.

#### **testing**

Producing is one case, but a flawless result is a completely different story. Certainty about a product's good performance can

only be achieved when numerous controls are performed during the complete production process. Kris Meeus, manager test & inspection engineering, shows us in his lecture an impression of what it involves. It is clear that the sooner a deviation is discovered, the lower the costs of repair will be. On optic inspection it is rather simple to correct a misplaced component in time. In the case of making an X-ray, badly soldered joints come to light immediately. Its repair is a relatively simple case too. It all becomes a bit more complicated if a PCB does not successfully undergo the structural testing program.

In-circuit-tests and boundary scans will often show which component is not connected rightly or does not work. Repairs are possible then as well, but it requires much more skill and time, therefore money. Finally, a functional test; burn-in and system test will complete the testing process. Flaws that appear from this require the highest efforts of our test engineers in order to establish the cause

and to turn the wrong. Again, in view of traceability all tests a PCB is subjected to, will be available in form of a report. If at a later time a PCB is not functioning well in the end product, then this may offer more insight in order to avoid future errors. To carry out the functional tests in the test environment the basic handler platform may be called in, in order to integrate functional tests on the products.

The functional test stations are built up around GETS (engineers call it a GETS: GEneric Test Station). The testing of mass production items in particular requires this method rather than the conventional test environment with measuring equipment that have to be calibrated separately for each measurement. The objective of all these efforts will be clear: tbp electronics wants to deliver flawless products to happy clients!

#### **trends**

Marcel Bullinga at the tbp supplier day and Rob Creemers at the tbp customer day were

\*) at first this department got the name of engineering. Our clients advised us to change this name into development. Simultaneously the name for the department of work preparation/project management was rechristened into production engineering.



Ronald de Lange, our needs for engineering



Kris Meeus, testing strategies at tbp



According to Marcel Bullinga there is not one future, but there are thousands. Choose whichever you want.

# reactions

Often heard and said:  
"well organised,  
excellently cared for."

## reactions during the customer day

Very good, very informative in an entertaining atmosphere, tbp: the business that is thinking about the future.

*L.A.A. Willems, Philips Consumer Electronics*

An example of perfection.

*Eric van der Lee, Holland Mechanics*

Client-concerned is one of tbp's top priorities.

*Marco van Falier, Honeywell SMS*

Great experience, well organised, customer to customer event.

*Filip Laureyns, Alcatel-Lucent*

tbp has shown that tbp + tbp Geel exceeds  $1 + 1 = 2$ .

*André van Nes, ASML*

I have enjoyed your hospitality and I have seen that you put time and effort in thinking along with your clients.

*Ben Eman, Genexis*

Well prepared, informative, well cared for.

*H. Steentjes, Nedap Specials*

## reactions during the supplier day

Informative in a good atmosphere. This information inspires suppliers to think along about improvements and innovations.

*Mark van Son, Romex*

You have exhibited a company that may be seen with a great appearance, professionalism and you have paid attention to many details.

*André Cokelaere, Spoerle*

Fine day, excellent atmosphere, good talks.

*Jos van Hartingsveldt, Avnet*

Informative & to-the-point!

*Ad van Klink, Mentor Graphics*

the outsiders who could share their views on the future. Mr Bullinga had 2020 in mind and he wondered what alterations there would be. His audience was able to be of help and he posed questions such as "Will the same conventional road signs be on our roads?" But as well how and which energy sources we would be using. He divided worldly matters into three categories: the virtual, the transparent and the intelligent. "There is not one future, but there are thousands. Choose whichever you like." He explained to his audience. Techno-trend watcher Creemers had his feet firmly on the ground and sketched in tearing rush the future timeline by extrapolating the developments. One of his conclusions was that the steeply rising demand for oil due to China's industrialisation in particular, will lead to (up till now) unsolvable situations. He foresees that the capacity in oil exploitation will not be able to keep up with consumption causing a great shortage. For the time being exploitation of coal seems to offer little comfort from an

environmental point of view (CO<sub>2</sub> emission). Communication is becoming increasingly important. Networks are making distances disappear and boundaries fade. In the near future everything will be connected by wireless radio networks. At the moment there are examples of the linking of the human brain with apparatuses. We are only at the brink of new possibilities. Watch out, "big brother is watching you" after all!

### valued

Both afternoons certainly met the expectations: our guests and the tbp-employees involved can look back on a successful event.

The average appreciation of the lectures, location and organisation was expressed with 8 (on a scale of 1 to 10) from the queries. It will be a challenge to match this result in the future or even to best it. But... tbp loves challenges!



Rob Creemers observes that distances disappear and boundaries fade. From the technical point of view this seems right, but does it hold for politics and religion as well?



networking in the Grand Café



## automated logistics centre is taking off

*tbp electronics is going to use an extremely sophisticated logistics centre for incoming and outgoing goods as from next year.*

*At the time of going to press of this Visie its construction was in full swing. Reasons to wonder how things will be fitted in within the organisation and what it will bring about.*

Indeed supplier Vanderlande Industries will install the system, yet it is but one side of the story. The system will have to function in the near future in cooperation with the Warehouse Management System (WMS) and Isah7, the ERP-system (Enterprise Resource Planning). The power of the logistics system is after all to automate the flow of goods as efficiently as possible.

To guarantee a successful implementation, tbp electronics has called in an external specialist who will guide with his helicopter view the process side and the physical arrangement. Project manager René van Veen, logistics advisor at Logistore, is running the show well. René explains: "Vanderlande is building the mechanical system including the internal controls, Van Boxtel Software is taking care of stock management and Isah7 is running for a considerable time already as an overall business system. There are various suppliers, so there is a risk of mutual miscommunication. We intend to have a perfect interaction between these different environments in the near future.

Moreover, I keep the finger on the pulse with all deliveries, so that tbp will get what has been agreed." If the objectives are reached that we have in mind, then it is possible that we will go and install such a system in our Belgian establishment as well.

### the storage system

The system consists of two rows of racks with a crane moving in between, the so-called mini-loader. Synthetic crates (60cm by 40cm, and 20cm high) containing the goods sit in the racks.

The mini-loader transports a standard crate between the two entries and the racks to a location assigned by the software. Goods of small dimensions (think of components) sit in compartments in the crate. There are crates with a subdivision in 2, 4, 8 or 16 parts, depending on the requirements.

In total about 3,000 crates are housed in the racks. As the crates are segmented, there is space for about 10,000 different product units. A plc (programmable logic controller) takes care of the internal control from the intake/delivery point (there are two of them and one extra in case of emergency) to the location and vice versa. Each crate has an individual barcode, so that tracing is a question of scanning. The system has a capacity of about 100 actions per hour. A remarkable detail is the crate's construction. Due to the compactness of the storage, sagging of the bottom is undesirable. To avoid this, the bottom has been produced in double with a honeycomb structure in between. Obviously the synthetics used are ESD-safe. This prevents electrostatic discharges damaging the chips.

Goods that are too big for a crate need some small racks of the conventional type with boards. In practice only few so-called odds will sit there, as by far most goods have dimensions that fall within the maximum dimensions of a crate.

### managing

At any moment it must be known where goods are or to which location they are to be transported. To this purpose there is WMS.

A database, the electronic card-index box, keeps track of what item is entering the logistics centre or what item is leaving it. The operator, yesteryear's stock manager, therefore knows exactly the stock situation and is able to collect or send goods via a computer terminal. WMS makes sure as well that goods for a certain production are collected according to the FIFO-principle (first in, first out). This means that the goods with the oldest production date are used first. The use of carrier numbers in this is indispensable and in view of traceability necessary.

WMS can do more than keeping the books. By keeping track of all mutations the system learns to improve the efficiency of the storage. "Popular" items, this way, will get a place near the intake point, and less popular items are further away. The system wins in speed by this intelligence.

### the flow of goods

Most goods are destined for production and consist mainly of boards and electronic components. When a new production is all ready to go, all goods are to be gathered in time. This gathering or picking, is controlled by Isah7, which determines what and when all should be ready. In this order it is verified obviously if everything is present. At the go-ahead automatic control of WMS is taking place, which collects the crates one by one, after which the order picker picks the right products according to information on the computer screen.

The end result is an extremely efficient flow of goods that fits seamlessly to the production lines. René is optimistic about the progress: "If no setbacks occur, then we can make some test rounds at the end of the year. If these tests are well, then we will go live 'somewhere' in January. I look confidently forward to it".



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



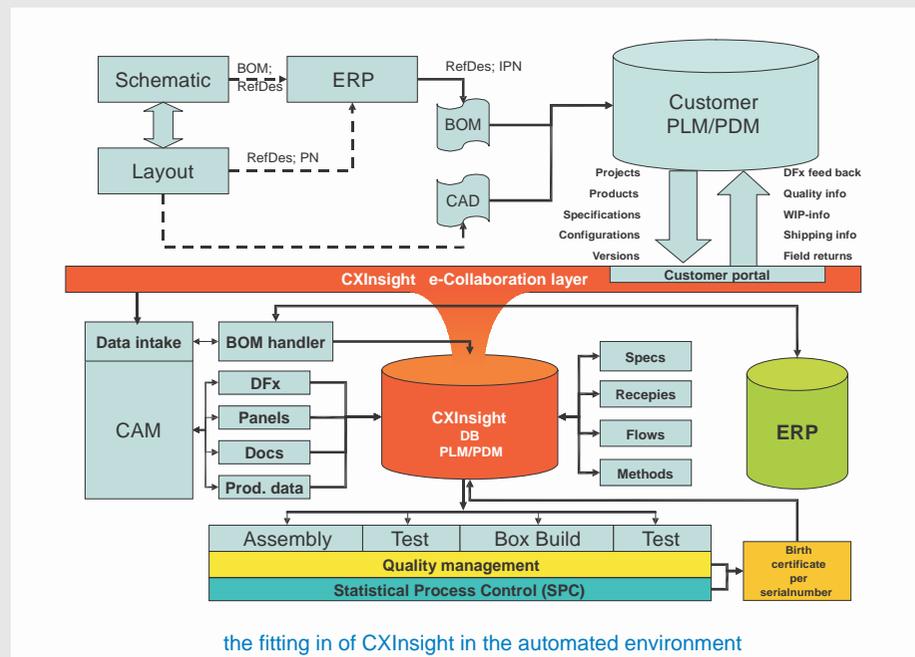
old situation



materials to the man in stead of the man to the materials

# keeping a finger on the pulse from design to end product

*Engineers of products such as apparatuses and machines often are active in various disciplines. Although electronics often plays an important part, there are still mechanical components, such as a cabinet or a front plate, that are part of the end product. Embedded software as well is applied frequently. In short, there is an interesting combination of disciplines to make a product.*



Before a design is suitable for production, in practice there have been made various design propositions that for all sorts of reasons never reached the finish. Prototypes are made and from them usually alterations come forth that lead to improvements etc. Moreover, clients may have specific requirements that may lead to a unique end product, of which there is no equal. Or various designs may be generated or versions.

Keeping track of all alterations takes a lot of effort from the project management that is burdened with the construction of the end product. During the development all sorts of things are running parallel. If we talk electronics, then time and again we have to test whether everything is meeting the specifications (e.g. the IPC or the RoHS standards). The products have to meet all sorts of regulations that have to be known to the designers. In addition, it should be kept in mind that the right product configurations are being produced. In other words there are many flows of information between all participants in a project.

## from idea to product

Currently, almost all electronics are designed with CAD systems (Computer Aided Design). Well-known tools for the development of electronic designs include Mentor Graphics, Cadens and Zuken. Moreover there exist many software packages that are being used for the mechanical design such as the cabinets and the way in which an apparatus is stuck together. The information that this software provides, serves as source material for the control of the machines that produce these products. This way bills of materials are made in which information can be found on what materials are needed and data for control of the production machines, manual assembling and measurement and test information etc.

Furthermore manufacturers use various, - sometimes foreign - electronics suppliers as well. Track should be kept exactly of which configurations a certain apparatus has had and from whom which parts in what numbers were purchased. Even a country's legislation can affect the end product if it is to be exported.

In practice clients will have specific demands giving this end product an (almost) unique status.

Further developments will improve the end product through time or certain components will be replaced by others in the production. The software applied in this end product will have alterations as well. An apparatus is subject to modifications during its life. In this knowledge of all specific information from the product life cycle management system (PLM) is indispensable.

Large producers such as ASML, Philips Medical and Honeywell have implemented an extensive sophisticated system to this end, a so-called PLM/ PDM system.

## full traceability

Despite a high degree of standardisation designers do not always produce flawless design data that lead to the desired result. tbp electronics will have to check the presented data firstly on completeness and practicability. Moreover, in electronics production there is always a testing strategy



CXInsight .  
for Electronics



from which the test programs, test fixtures and the like evolve. This process is called design for manufacturability analysis (DfX). Possible surfacing design flaws are fed back to the client. This feedback however, will have to reach the right people at the client. They determine subsequently whether and where an adjustment will take place: if the client carries out an adjustment, then a new data set with a new version number is created.

In the case of various clients, there is need of a control system to keep track of all versions and to keep them apart. Clients demand of their producers a so-called full traceability. This means that we must be able to track, sometimes years afterwards, how a particular product was designed and why a particular component was selected, what discussions there were about it, what e-mail traffic there was and which reports were made etc. Clients want to be able to ask later on how production of a certain board came into being.

In other words: the complete history needs to be known. Were there repairs during production? Did the boards go through all process routines (the so-called forced routing)?

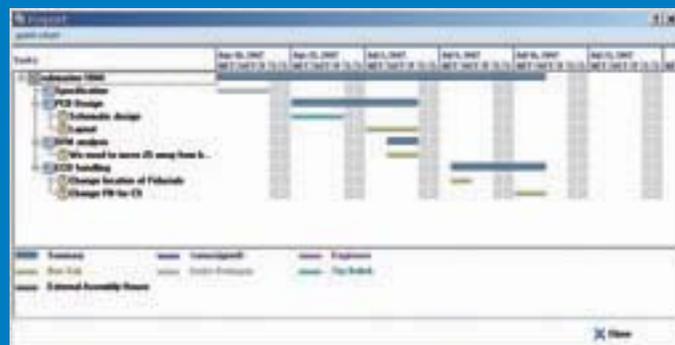
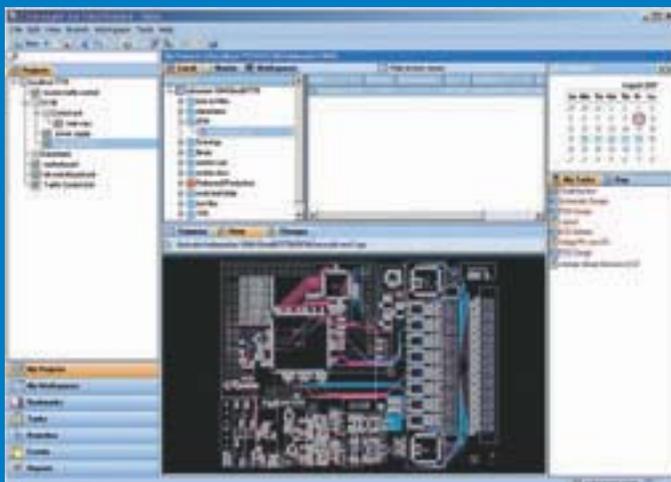
If it appears that in certain boards the same flaws are occurring, e.g. the breaking down of a component, then the producer wants to know in which apparatuses with what serial number such boards were used. We know this phenomenon from the motor industry in which a certain group from a series of cars is being called back if defects occur. Thanks to full traceability it can be indicated precisely *which* cars have to be called back for repairs.

#### software

In order to be able to manage all information flows from design to the moment that a machine is being discarded and to distribute it, Adeon has developed in cooperation with its English partner CXInsight, a so-called 'design data management and production information management system'. This software tool

is applied in both the design environment and the production environment. The software registers all information of everything involved during the product life cycle and files this into a database. With it, not only the reconstruction of information of any nature is available at any given moment, but via the so-called "e-collaboration" possibilities of CXInsight all data between the partners may be shared as well. E-collaboration is electronic cooperation, in which the communication between designers, suppliers, service engineers and tbp takes place in a secured way (128 bit encrypted) via the Internet. Full traceability is the key to controllability and availability of the right information. It does not only contribute to a qualitatively high-grade product, but also to an efficiency in design and production. tbp electronics sees clearly the benefits of this new and modern way of cooperation with its clients and suppliers based on full traceability.

[www.cxinsight.com](http://www.cxinsight.com)  
[www.adeon.nl](http://www.adeon.nl)



screens when using CXInsight

# Barco keeps shedding a new light on the matter



The Belgian company Barco has enjoyed great fame for years in the field of visualisation products, monitoring systems and high end image projectors. Media & Entertainment division is active in the professional market of products that are being applied at large scale events such as pop concerts and fashion and car shows to which a light show is inextricably bound up with. One can think for instance of spectacular shows of U2, Bon Jovi or Madonna. Light is at least as important as sound. This is why here large image projectors and LED-systems can be found. The largest clientele of such systems are hire firms. LED-systems are applied in addition to these special events as well in the media market for large information panels or marketing manifestations (architainment). Nowadays they are to be found nearly everywhere: from the facade of a house, in public halls, to the edge of a football pitch.

In addition to the LED-systems and the projectors for the "events-market", Barco produces DLP-projectors as well that are increasingly more often to be seen in cinemas. There a "replacement-market" is going on from 35mm cinema-projectors to digital projection. The film is being projected in digital format. Watching a movie in a "film-less" cinema, with unprecedented and unchanging image quality.

## LED-systems

In one of its LED-systems Barco uses strips on which in line full SMD multicolour LEDs (light emitting diodes with the primary

colours red, green and blue in one package) have been fitted. The pitch, or in between distance, between two LEDs is 13mm. This distance forms the screen resolution. Each LED can produce almost any colour between black (no light) and white light by mixing colours. Barco assembles four LED-boards, controlled by one driver board, to an end product. Various Mistrisp modules are linked to a control box and this way gigantic LED walls can be built. Such installations comprise millions of LEDs. By controlling each LED rightly (parts of) images can be reproduced. The software that takes care of a perfect image with the right colour and intensity reproduction, plays a crucial part in it.

tbp electronics Belgium produces both the drivers in the modules and the strips with LEDs. About three to four thousand sets of four LED boards and one driver per month leave the assembling line. In addition to the Mistrisp the by now somewhat older Olite 510 is a popular product. The production of these LED-modules is the first product that Alcatel at Geel (Belgium) started to produce about three years ago.

## the production

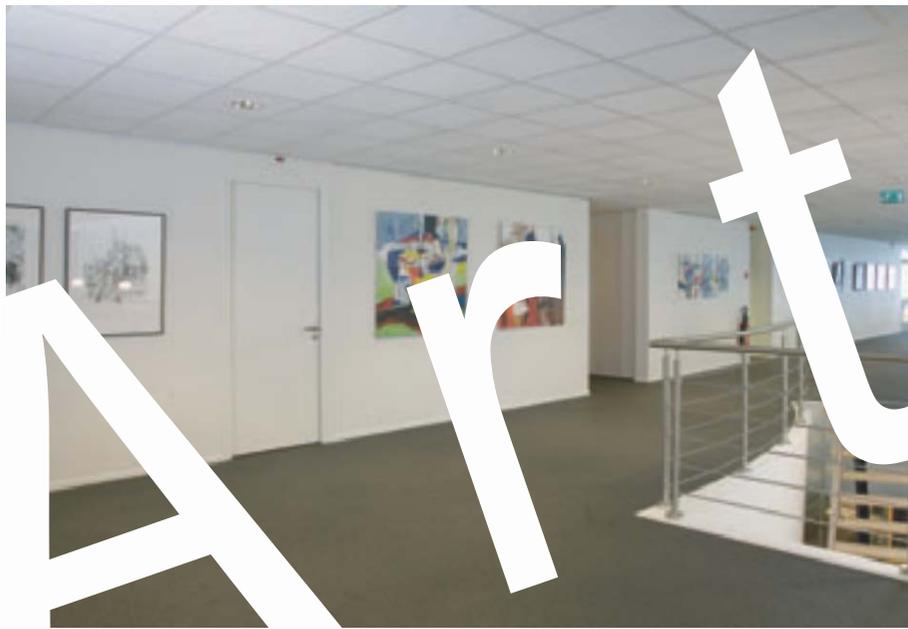
Barco has a number of its LED-products made at tbp electronics at Geel. Joost Vanwildemeersch, purchaser at Barco, remembers all too well how it started: "It was for a performance by U2 that Barco, in cooperation with one of its important rental partners, had to take care of the video show. The problem was to get about 15,000 brand new Olite 510 modules ready in time, because deadline is deadline.

Obviously, all modules had to meet our severe quality standards. The then Alcatel has dedicated itself exceptionally to deliver in time. It was a success."

Barco opted for Alcatel because of the free production capacity. Vanwildemeersch remembers it exactly: "Our contacts at the time had insufficient capacity at that moment, so Barco was glad with this new contact. At first it was a one-time order, but in the light of the good experiences new projects as well were offered. This way a provisional contact was turned into a long time relationship."

An additional decision parameter to throw in their lot with the then Alcatel, is the "buying power" that a large organisation as Alcatel has. Vanwildemeersch has his own view in this: "Barco outsources the print assembling to tbp electronics and wants to have as little trouble as possible with purchase problems. The purchase of components is not our core business any more. A large purchaser such as tbp can more easily make demands of suppliers than a small purchaser. Nevertheless, it occurs too often that Barco has to come with creative solutions to solve the material shortages. Vanwildemeersch is positive about the taking over by tbp electronics of the assembling plant of Alcatel. The unlinking from the great Alcatel, that normally is having its products assembled in Geel, makes that other clients get the priority that they deserve. "Now we are working more on a basis of equality and I have the impression that earlier this was a lot less." says Vanwildemeersch.

[www.barco.com](http://www.barco.com)



## in Dirksland

### Art in a high-tech company?

Yes indeed, at tbp electronics the daily hectic life is being interrupted by an artistic presentation in the interior of our company premises.

Ton Plooy has a vision of his own. "When we had our plan for new construction ready, it struck us that inside the office there would be long, white walls. We got the impression that it would get a somewhat sterile image. We decided in consultation with Ineke Vis on a good completion. I myself have little affinity with the arts, but I think that this form of creativity fits excellently as a contrast with the automated processes within our company. Art exhibition should therefore not have a permanent but a temporary character. This avoids a dusty image."

Peter Walschots, tbp's graphic designer and artist, had the honour of being the first with an exhibition of his paintings. Peter followed the course at the Academie van Beeldende Kunsten (Willem de Kooning Academy) in Rotterdam. He gets his inspiration from work by American expressionists/abstract painters such as Willem de Kooning. Peter Walschots' work sometimes has abstract and at other times an abstract-figurative expression.

After his exhibition Bas Theman from Rotterdam followed him with his American expressionistic work and after that Nanda Pieksma exhibited her macro- photographs. Her works are characterised by the special reproduction of sometimes common objects such as a garlic press, a cheese slicer with wires or spoons.

The carefully chosen source of light and the background a special spectacle is created that can fascinate the viewer.

At the publishing of this edition of Visie Jaap Weg has his exhibition with his copperplates. What makes them special is that they are unique: there has been made only one single print. His work consists mainly of human figures and shapes. He himself says about them: "My drawings and paintings are diaries, but then in the form of an image. Earlier I painted animals. But each time I return to people, because they captivate me."

The exhibition wall is available in principle to every artist. The works will be exhibited for about two to three months for employees and visitors of the company building in Dirksland. Information on prices and availability are always at the foyer on the first floor.

Are there any serious artist among you who want to make use of the exhibition wall? Please contact tbp electronics' Dana Wolters,  
 T +31 (0)187 602 744  
 E info@tbp.nl  
 She can inform you on the possibilities.



Jaap Weg in his copperplate factory in Rotterdam.

## Pink Ribbon



*It has been a cheerful and dynamic year that has almost come to an end. The many ways of cooperation between tbp electronics and its clients and suppliers have stimulated us to take the (un)necessary action, to make investments and to improve processes. One of our last actions in 2007 is to inform you – as we did in former years - that we have found a charity to which our heart goes out. In stead of sending thousands of Christmas cards we have donated a sum to the St. Pink Ribbon, a foundation against breast cancer. 'Pink Ribbon' was developed in 1992 by Evelyn H. Lauder (Senior Corporate Vice-President of The Estée Lauder Companies) and Alexandra Penney (at the time chief-editor of Self Magazine) and is now standing globally as a symbol for breast health. Unfortunately, nowadays one in nine women is detected to have breast cancer. That is why it is good to know that in the mean time about 65 million pink ribbons have been distributed!*

You can read more about it on [www.pinkribbon.nl](http://www.pinkribbon.nl)

# tbp exhibits itself

We remember with lots of pleasure our participation in the fair Electronics & Automation. Whether it is thanks to the success of the Live PIL (Production Integration Line) it is hard to indicate, but many relations succeeded in finding the tbp-stand and our Grand Café anyway. During the happy hour the meeting honestly was convivial and a welcome mix of serious talks, creative musical tours de force, savoury dishes, networking and fun.

Next year there will be two fairs again tbp electronics will attend. Please write it down in your diary! In spring you can find us at 'Het Instrument' (20 up to and including 23 May 2008) in the Utrecht Jaarbeurs. You are reading rightly, the tradition has been broken with: not five but four days and not in autumn but in sparkling spring. It promises to be the biggest technology event for industry and science in the Benelux, the theme is 'people acquainting science'.

In autumn we are in Munich from 11 up to and including 14 November. This fair, Electronica 2008, is about the whole spectrum of electronics in cars, mobile communication apparatuses, "embedded" in machines to nanotechnology.

More information you can find at the web sites:

[www.hetinstrument.nl](http://www.hetinstrument.nl)  
[www.eabeurs.nl](http://www.eabeurs.nl)  
[www.electronica.de](http://www.electronica.de)



the Live PIL at the E&A fair 2007 was a great success



tbp's happy hour was very popular



**electronica** 2008  
components | systems | applications