

## GTX POWER BOSCH DRAWING UPDATE SYSTEM

*"It has always been an unbearable thought to me that someone could inspect one of my products and find it inferior in anyway. For that reason I have constantly tried to produce products which withstand the closest scrutiny - products which prove themselves superior in every respect....."*

*This early example of a 'company mission' statement was spoken by Robert Bosch in 1918. It has certainly stood his company in good stead as it has grown to now employ 202,000 people in over 135 countries.*

There is little doubt that Bosch are world class manufacturers. Sales in 2000 were in excess of US\$28 Billion world-wide and they have a product portfolio that extends from automotive equipment, through car audio and navigation products (Blaupunkt brand name), heating systems, household appliances, lawn and garden products (Atco-Qualcast brand names) to power tools.

In the UK alone, Bosch employ nearly 4,000 people, and amongst their more important activities is the manufacture of Automotive Alternators at their factory just outside Cardiff in Wales. From its beginning as a `Greenfield` site in 1989, the Alternator Production Division has grown to the extent that it is now able to achieve the staggering output of between 4 and 5 million units per year. This is achieved via 5 production lines capable of outputting 10,700 units during a 12-hour shift.

The alternators coming off the production line are exported all over the world to supply most of the world's leading automobile and truck manufacturers, including Mercedes, Ford and Volkswagen.

Records and drawings describing most of the production lines and the machinery used to manufacture the Alternators have been supplied from other parts of the Bosch organisation. Originally they were filed manually with all the consequent problems of updating these drawings by hand, deterioration of drawings and keeping track of where they were at any point of time.

About 15 months ago, with the increasing volume of work, it was decided to employ a bureau to scan all these drawings into electronic form. It was then a question of which software should be purchased to help work with these scanned-in raster drawings, to clean them up, edit them and keep them up to date.

The Design Manager in charge of this project and of the drawing archive, picks up the story at this point and said, "We had been using AutoCAD for some time on the product and component design side of things, as were the majority of our sub-contractors. When we looked at the software that was available to help us work with our scanned drawings we were impressed with the way that GTXRaster CAD



enabled us to make `intelligent` edits to the raster data as if they were vector data. The integration between GTXRaster CAD and AutoCAD is also very good, with many of the GTX `raster` commands being exactly the same as the AutoCAD commands with just a `g` in front. This made the training very straightforward, and our engineers and draughtsmen were productive almost immediately".

The AutoCAD and GTXRaster CAD Software Solutions were supplied by the Bridgend based Envisage UK Ltd. Since the initial AutoCAD installation, approximately 5 years ago, Envisage have worked closely with Bosch to help them extend and enhance their system. Mr Alan Bishop, Managing Director of Envisage, commented that, "Over the years we have helped Bosch integrate the various elements of this system together, so that now they can combine their AutoCAD drawing files with their scanned-in drawings". Mr Bishop went on to add that, "Bosch can now easily keep all their drawings up to date and make the latest version of any drawing available to an appropriately authorised user/employee anywhere in the world"

On a daily basis at the Bosch Alternator Production Division, the four AutoCAD/GTXRaster CAD seats are being used to update both the AutoCAD (DWG) vector files and the scanned-in (TIF) raster files.

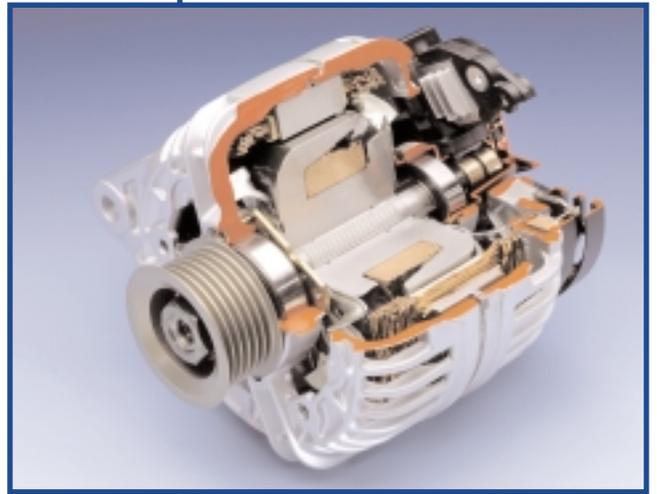
At the end of each working day, using a routine developed by Envisage, any AutoCAD files that have been updated or changed during the day are converted into the CALS raster format. These files, along with any updated scanned-in files, now become the new `Master` drawings. CALS was chosen as it is an internationally accepted standard format. It is widely used for storing raster data, because of the very efficient compression it achieves and the consequent small file sizes.

These up to date files are then available to other Bosch users for viewing and plotting, as and when required, in any of the Bosch plants anywhere in the world.

The Design Manager and his team have developed a very effective and efficient Drawing Management System, based on the Access database software. This controls all the drawing files, and amongst other things, it ensures that only the latest and most recent versions are available for distribution. He went on to comment that, "Apart from the `internal` benefits that we have experienced at Bosch from using the GTX Software, we have also improved the efficiency, speed and security with which we can communicate drawings `externally` to our sub-contractors. Using GTXRaster CAD we can now easily send sub-contractors up-to-date CALS or TIF raster files for them to use for quoting purposes. Security of our data is also increased by this method, because we do not now need to let the vector (DWG) files go out of our immediate control".

The Design Manager concluded that, "The GTXRaster CAD/AutoCAD software solution works very well for us. With Envisage's support we have been able to develop a very efficient and effective system for managing, updating and distributing all our scanned and CAD files".

In the mould of their founder and guiding light, Bosch have developed a number of `Quality Principles`. One of these indicates that, "The quality of our products also depends upon the quality of sourced parts. Demand highest quality from our suppliers, and support them in adhering to our mutual quality goals".



GTX and Envisage hope that their contributions have helped Bosch achieve this `Quality Principle` when it comes to their Technical Imaging and CAD requirements.

If you would like to find out more about the companies involved in this Case Study please visit: -

[www.bosch.co.uk](http://www.bosch.co.uk)

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

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

#### GTX Corporation Company Profile:

*GTX Corporation is the leading supplier of scan-conversion and editing products that provide complete integration and interfacing between scanned drawing archives and Computer Aided Design/Drafting CAD systems.*

*GTX was founded in 1984 by Dr. Marvin T. Ling, to bridge the gap between paper engineering drawings and electronic format (CAD) and to solve the time-consuming problems of storing, retrieving and editing paper drawings.*

*GTX is a privately held corporation headquartered in Phoenix, Arizona with offices in Basingstoke, England and Taipei, Taiwan. GTX sells its products through a network of authorized distributors and resellers throughout the Americas, Europe, Asia, the Pacific Rim, the Middle East and Africa. GTX also licenses its technology to third-party CAD vendors for integration and sale under their own private label.*

*GTX technology brings intelligence to manually created drawings and allows companies to gain productivity and lower costs to effectively maintain, revise and store their engineering documents.*

## Intelligent Paper to CAD Solutions®

GTX Corporation - A 15333 North Pima Road, Suite 105, Scottsdale, Arizona 85260 P 1.800.879.8284 480.889.8600 F 480.889.8610 E info@gtx.com W www.gtx.com  
GTX Europe Ltd. - A The Estate Office, Chineham Park, Crockford Lane, Basingstoke, Hampshire, United Kingdom RG24 8QZ P +44 (0)1256.708.706 F +44 (0)1256.708.304 E info@gtx.co.uk

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