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Standardized technology ensures stable costs and faster delivery times

The tried and tested DCAM is now available in economical module form

The story of the successful assembly platform continues…..

The DCAM (DEPRAG COMPACT ASSEMBLY MODULE) came into the world at a time when mobile phones were still being assembled by time-consuming manual procedures. Any manufacturer that could produce mobile phones faster and more cost-effectively would be ahead of the game. The assembly platform for use in industrial manufacture came into being and began on its course to conquer the world. That was over 25 years ago and today the greatly admired assembly cell is well established all over the world. Of course over those years the engineers at DEPRAG SCHULZ GMBH u. CO have constantly been enhancing their much emulated work platform. A pioneering optimized and modular form of the DCAM has recently been launched on the market. In an interview conducted by technical journalist & Editor Trixy Schmidt with Norbert Widder, Automation Sales Manager at DEPRAG, benefits for customers were discussed.

Trixy Schmidt: Over the past 25 years the DCAM has made a name for itself throughout the world. It can be deployed very flexibly for a wide variety of assembly and production tasks. Now there is a new, modular DCAM. Which enhancements and improvements can be seen? Where do the benefits for the customer lie?

Norbert Widder: DEPRAG has gathered the experience it has gained over the past 25 years, carried out a strategic study and analysis, and incorporated the results into the new DCAM. In the optimized DCAM customers now have a standardized assembly platform providing the proverbial dependability and high level of operating reliability of the established assembly cell. However the modular structure means that it is now easier to calculate investment costs, and it can be delivered sooner. It means that the new "off the peg" DCAM is available at a fixed price and comes with a manageable delivery lead time.

Trixy Schmidt: The base frame for the work cell has to stand up to the dynamic loads created by an axis-based screwdriving process. What materials did DEPRAG decide on when designing the new version DCAM?

Norbert Widder: Our work cell has been frequently copied. In our view, the aluminum profiles used in such copies for the machine bases do not meet stability and safety requirements in the presence of heavy mechanical loads. Our machine bases are therefore manufactured from canted sheet steel with torsion-

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resistant screw fastenings. It is this powder-coated steel frame which ensures the internationally recognized stability and durability of the platform.

Trixy Schmidt: The assembly station is equipped with high-quality axis modules consisting of linear axes with tooth-ring drive and, on request, a Z-axis with ball screw. DEPRAG uses its own engineering design. Why is this?

Norbert Widder: Having carried out a number of trials with commercially available axes, all without success, we came to the conclusion that none of them met our requirements as regards the typical loads created by screwdriving assembly work, such as torque reaction and mass loads. We therefore developed our own axis system, tailored to withstand screwdriving processes, to guarantee the high level of operating reliability and the dependability of our assembly platform. This also makes it possible to achieve an acceleration in X and Y direction of up to 5 ms².”

Trixy Schmidt: Are there other benefits too?

Norbert Widder: Yes, there are indeed. When the toothed belt needs changing, it can be done without having to dismantle the axis. Depending on the assembly task, the axis can be either a right-hand or left-hand version. In the event of a repair, the motor and the limit switch can be replaced without problem from within the cell. The new XY axis system is an extremely compact construction in both the 400 x 250 mm and the 600 x 600 mm versions.

Trixy Schmidt: So there are two different versions?

Norbert Widder: That's right. The new standardized DCAM is available in two versions. Version A provides a maximum effective distance of movement of 400 millimeters for the X-axis, and 250 for the Y-axis. In version B the X and Y axes each travel up to 600 millimeters. An optional Z-axis likewise developed for use in the DCAM, and which can also be easily retrofitted to an XY system, has a useful travel range of 160 millimeters and requires less than a second for its total stroke. At 45 millimeters, the Z-axis too has a very flat design for material flow on an automated linear transfer system.

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Trixy Schmidt: The DCAM is the ideal work platform for an application in which several points have to be reached quickly and accurately. This is why it is deployed particularly frequently for manual screwdriving tasks. This is where the assembly line has workstations for standing or seated workers. Is the platform workbench height adjustable?

Norbert Widder: Of course. The base frame of our DCAM is an intelligent grid system which allows individual configurations and working height adjustments. The dimensions of the work piece being assembled can also make it necessary to adjust the working height. Flexibility in our systems is very important to us. An ergonomic working height can be achieved with just a few adjustments. Different handling systems such as sliding tables or higher rotary index machines do not create an obstacle.

Trixy Schmidt: How are the work pieces fed into the DCAM?

Norbert Widder: Work pieces can be fed into the new DCAM manually or in a fully automated process. In the case of a manual feed, this is done by means of a sliding carriage or a rotary index machine, as the customer prefers. A linear transfer system takes care of the fully automated component feed procedure. Depending on the application, operator safety is ensured by means of a safety door or light curtain.

Trixy Schmidt: The DCAM is in use throughout the world. What happens if a problem occurs with the control software for example in China? Would production have to stop?

Norbert Widder: Inconceivable. Of course it wouldn't. A high-quality control unit is incorporated into every DCAM standard module. This control technology is available everywhere in the world. The DCAM control unit has up to 199 inputs and outputs. It can address up to three axes as well as different communication modules, and all the necessary electrical components required for the necessary safety design. Particularly when combined with DEPRAG's latest DCOS operating system, consisting of an industrial PC from a renowned manufacturer running the consistently proven modular DEPRAG software, operational problems caused by control errors do not occur.

Trixy Schmidt: These days the Human Machine Interface (HMI) - in other words the ease in which the machine can be operated - plays an important role in whether or not to purchase a particular system. How does the new DCAM rate here?

Norbert Widder: DEPRAG has always placed high value on a good HMI. And the new DCAM is no exception. For example the operating panel is pluggable, and can be moved from right to left to suit left-handed operators. It

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is height-adjustable and thus meets all the ergonomic requirements. It is also possible to equip the DCAM with an external operating panel, to make teaching operation easier.

Trixy Schmidt: Could you once again briefly summarize the advantages of the optimized, standardized DCAM for your customers?

Norbert Widder: Without moving away from the successful concept, at last the tried and tested DCAM is available at a fixed price and with shorter delivery times. The new DCAM scores too, with its high levels of functionality, reliability and flexibility. Established technology, proven over 25 years and constantly optimized, has been incorporated into clearly organized standard modules.

Trixy Schmidt: Can customers still order an individually designed DCAM assembly platform?

Norbert Widder: Of course we also continue to manufacture customized DCAM assembly cells according to customer specifications. With this option, customers receive a specially designed machine - more expensive of course - but tailored to their complex special requirements in every detail.

Trixy Schmidt: Thank you for talking with us.

Its new products and constant optimization of existing product lines, such as the successful DCAM model, have ensured that this full-service provider is a sought-after partner in the world of automation. DEPRAG SCHULZ GMBH u. CO has more than 600 employees in more than 50 countries. Screwdriving technology along with the component-feed and measurement technologies are likewise core activities for these automation experts, valued for their flexibility and good service. And the German engineering firm has also made a name for itself with its innovative air motors and pneumatic tools.

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