

Press Release

DEPRAG presents a screwdriving device that is capable to reliably assemble hearing aids

New screwdriver applies micro-sized torque

DEPRAG follows the trend towards miniaturization in the assembly technology

Every 8th adult suffers from hearing problems. Only one third of them in Germany use a hearing aid. However, according to an extended study of impaired hearing, those who decide in favor of a hearing aid experience an indisputably better quality of life. As people are living longer the hearing-aid market is expected to be a growth market. Due to aesthetics many hearing-loss sufferers have hesitated to use a hearing aid. Today's fully digitalized hearing aids are of higher performance and much smaller in size than in the past. Hearing aid manufacturers have successfully endeavored to miniaturize their products and to lower the inhibition threshold for users.



About 45 000 people in Germany, France and Great Britain have been questioned by the market research company "Züricher Marktforschungsinstitut Anovum" on behalf of EHIMA (European Hearing Instrument Manufacturers Association). The outcome was the most comprehensive study of hearing, loss of hearing and hearing devices in Europe. With this collection of data, presented under the name "EuroTrak" in 2010, there now exists in Europe a well-founded database for the detection of defective hearing. From a total of 14185 interviewees in Germany, 13.1 percent stated that they were suffering from defective hearing or deafness. Only 31.8 percent of those affected, use a hearing aid. According to the statement of the "Handelsblatt" there are about 4000 retail outlets for hearing aids in Germany employing a total of approximately 10,000 people. In 2009 the hearing aid industry sold about 775,000 hearing aids with a turnover of approximately one Billion Euro. The six largest hearing aid manufacturers are represented by the EHIMA. These are Oticon, Phonak, ReSound, Siemens, Starkey and Widex.

The study implies that a full two thirds of all people with defective hearing do not use any hearing aids. To help combat this trend, the industry has increased its efforts to design and produce the most compact and least visible hearing aids. As a result of digital technology smaller and almost imperceptible hearing aids have been successfully developed for both behind the ear and inside the ear canal. This miniaturization - which can be also found in many other technical areas - represents a special challenge for industrial production. Machine and equipment engineers are faced with the task of designing new tools for small-scale assembly

and bringing them to the marketplace. DEPRAG SCHULZ GMBH u. CO. in Bavaria is known for the ongoing optimization of its products and ground-breaking innovations. The screwdriving specialist has developed an innovative control screwdriver for miniature-assemblies - the NANOMAT®. This new screwdriving tool that comes in four different torque ranges, achieves an extremely low torque value from 8 Nmm to 300 Nmm (1.14 inch ounces to 42.6 inch ounces), while offering a high speed of up to 2,000 rpm and an extreme high degree of accuracy. With the introduction of the NANOMAT®, DEPRAG offers a control screwdriver with the lowest torque capability available anywhere on the market.

Here are some examples of how the new screwdriver can be used: The NANOMAT® can be used in medical technology for the reliable assembly of hearing aids or pacemakers. Screwdriving tools for miniature- and micro-assemblies are also wide-spread in the watch-making industry, for the assembly of precision mechanics and for the construction of measuring instruments. Another field of application is the optical industry, where some of the smallest fasteners are applied for the assembly of glasses, lenses, cameras and microscopes. Miniaturization also plays an important role in the assembly of electronic products and components such as mobile phones, pocket calculators, play stations, laptops and tablet-PCs.



The NANOMAT® screwdriver is the lowest, automatic torque screwdriver available anywhere. The air-operated NANOMAT® is currently available as a handheld screwdriver and also in spindle-form for stationary applications.

DEPRAG's innovative NANOMAT pneumatic screwdriver achieves its highly accurate torque control through the proven principle of the DEPRAG mechanical separation and shut-off clutch. This enables torque repeatability lower than $\pm 3\%$ s and this is sustained for millions of cycles. Under suitable environmental conditions DEPRAG pneumatic screwdrivers with shut-off clutch achieve a Cmk-value of 1.67. A Cmk-value of 1.67 means an error rate of just 0.6 errors per one million screwdriving cycles! With minimal time and effort, the torque setting can be adjusted on the pneumatic screwdriver without the requirement of a specific tool.

Further advantages have been added by the DEPRAG engineers to the NANOMAT® products. For example, the compact design. For micro-sized or miniature-assemblies, DEPRAG has designed the NANOMAT® stationary spindle (automation) screwdriver with a diameter of only 12-mm, allowing the smallest center-to-center distance for stationary applications. Of course, the stationary NANOMAT® also incorporates the proven DEPRAG guide-bolt system, which regulates the optimal screw end-load pressure by means of an engineered spring-force.

For a manual screwdriving process, the ergonomic housing shape ensures the ergonomic and precise control of the screwdriver. A tube built into the screwdriver housing allows integrated vacuum service for picking and control of small screws or fasteners - there will be no vacuum hoses that get in the way of the screwdriver grip. The integrated quick-change chuck guarantees an easy and fast change of the screwdriver bit without having to use tools. The NANOMAT is able to accept standard bits, A3-drive type, in accordance with DIN 3126. All of these features give a clear competitive edge to DEPRAG's screwdriving technology.

The new NANOMAT represents a new product family in a proven DEPRAG screwdriver program. The manufacturer expects that the NANOMAT will take its place among the well known MINIMAT® and MICROMAT® pneumatic and EC-screwdriver series known worldwide.



However, the entry of the NANOMAT into the world of miniature-assemblies, is not complete without offering "all-around solutions", which include peripheral instruments such as automatic screw feeder, accurate torque-measuring devices, robust and reliable guided tool support stands, bits and sockets, balancers and much more.

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