

## Press Release

Active vibration amplitude control in DEPRAG's vibratory bowl feeder

Screws are accurately positioned on the screwdriver

Expansion of feeder product-range with 1.2-liter bowl and a miniature feeding-device with Piezo technology

One of the main issues related to automated assembly of components is the precise feeding of the assembly components. Regardless of whether you are assembling extremely small screws or larger hex nuts – the on-time and accurately-positioned supply for the assembly process determines the overall productivity of a system. 30 years of experience in the field of feeding technology of screws, rivets, bolts, nuts, washers, O-rings, symmetrical and asymmetrical components, are the basis for new feeder developments guaranteeing nothing but the highest precision and reliability. Valuable additions to the wide assortment of feeding technology, tailor-made to a customer requirement, will be introduced by the automation expert DEPRAG SCHULZ GMBH u. CO. at this year's MOTTEK fair in Stuttgart.



The "6" Series line of vibratory bowl feeders for handheld screwdrivers will now be extended by adding a new size. In addition to the previous filling capacities of 0.15 liter, 0.75 liter and 2.5 liter, a feed bowl with a capacity of 1.2-liter now completes the standard range. Sales Manager Jürgen Hierold explains: "This feeder reflects the demands of our customers for whom the 0.75 liter bowl was too small. The next larger 2.5 liter bowl, however, was too large for this group of customers and therefore not very cost-effective". With the new feeder DEPRAG closes this gap. Jürgen Hierold underlines: "The new 1.2-liter solution addresses and fulfills the concerns of these customers".

The new 1.2-liter feeder includes all the advantages of the new feeder generation. In particular, the self-regulation of the vibration amplitude in the feed bowl (automatically responding to the actual bowl fill-level) makes the DEPRAG Series-6 especially valuable for a rationalized assembly. Differences in feed rate can create problems with the work flow. In this instance the continuously fluctuating volume of parts in the feed bowl and the consequent change in mass, lead to variations in the feed rate. As a result, the components are not presented to the assembly point in sync with the tempo of the operator or the machine sequence. This problem would normally require a manual adjustment of the bowl vibration frequency.

The vibratory bowl feeder technology uses an oscillation magnet with alternating current, a spring assembly, and a built-in regulator to transport the screws along the bowl spiral via micro wave movement. If the bowl contains a large quantity of screws, then higher vibration amplitude must be applied to achieve a constant flow of parts. Ideally, the vibration amplitude should adapt to the changing mass in the vibratory bowl. Jürgen Hierold explains: "Otherwise, when the bowl is low in on parts, the remaining material would be subject to higher vibration leading to sporadic and unpredictable behavior, ultimately affecting the feed rate." All in all, the DEPRAG Series 6 has now achieved what the industry has long been looking for: self-regulation independent of the bowl fill level. Both the high functionality and process reliability of the advanced feeders result from the innovation of a sensor mounted to the vibratory bowl, which registers the vibration amplitude. This feature in conjunction with the series-6 controller, allows the feeder to self-regulate. Sales Manager Jürgen Hierold is convinced that "The screw Series-6 feeders will always insure that the parts or screws are presented to the assembly at the correct feed rate."

For manual screw assemblies, the DEPRAG Series-6 feed system offers another innovative advantage. The screwfeeder can be adapted to the individual work-pace of the worker. An RFID-Interface-System (Radio Frequency Identification System) enables up to 10 workers to log-in to the controller with their own operator chip. Once the worker's operating parameters (operating pace, feed rate etc.) are stored - via the easy to use controller interface - it can be automatically retrieved at shift change using an individual ID-tag. More importantly, the user feels more comfortable with the equipment, which results into a more content and efficient work environment (A.K.A.: efficiency grows with acceptance).



For stationary applications DEPRAG has also added bowl feeders with a capacity of 1.2-liter to the standard program. Here, feeders are offered that are specifically designed for screws having a shaft-diameter ranging from M1 to M20, and a shaft length of 5-mm to 130-mm. (previously, the fill volume of the offered feed bowls was 0.15 liter, 0.75 liter., 2.5 liter, 6 liter and 12 liter). Now, the product range is completed by adding the 1.2-liter capacity feeder, which, of course, is also equipped with the self-regulating vibration control.

A completely new feeder for stationary assembly has also been developed. It can serialize miniature screws the size of a pin head (note: this particular model will also be present at the MOTTEK 2011 fair). The innovative DEPRAG 0.05-liter vibratory bowl feeder enables a controlled feeding of previously problematic miniature parts. The Piezo drive used ensures the finest vibrations of the bowl with a frequency regulation of 60 to 400 Hz. Sales Manager Jürgen Hierold stresses: "This extremely fine technique permits an adjustable feed rate with an extreme high accuracy. No little screw steps out of line. This enables the precise feeding of even the smallest parts the size of a rice grain." Ideally, the advanced feeding system serves to feed mini-screws with high accuracy to the area where they can be

assembled by the new NANOMAT® Screwdriver - an innovative screwdriving tool for micro-assemblies. Jürgen Hierold explains: "Increasing technological miniaturization causes major issues in production. We now are able to eliminate these problems by means of our new NANOMAT® screwdriver and the complementing mini-feeding technology."

The DEPRAG SCHULZ GMBH u. CO. with its headquarters in Amberg/Bavaria is represented worldwide in more than 50 countries. Innovations and ongoing R & D of proven products make the one-stop-shop an attractive contact partner in automation. The screwdriving technology and both the feeding and measuring technology are among the core competencies of DEPRAG. Please visit us at booth (Booth No. 1331, Hall 1) at the MOTEK 2011 fair in Stuttgart (from 10th to 13th of October). We will present a number of solutions for both a cost-effective, process-reliable, modern assembly- and handling technologies.

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