WAFIOS AG
Silberburgstrasse 5
72764 Reutlingen
Germany

Contact: Public Relation
Phone: +49 71 21 146 309
Email: media@wafios.de
Internet: www.wafios.com

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Flexibility is Key – New WAFIOS SNA Series for the Production of Rings and Wave Springs on one Machine

Designed for the production of high-precision one- or multi-turn rings from profiled material, as well as right-hand coiled wave springs (option), the SNA series offers a wide range of application possibilities. The upgraded machine version with a special pitch device can be used to produce rings with waves, multi-turn rings with crimps or complex wave springs. Compared to conventional spiral springs, wave springs offer a continuously high spring force and deflection while requiring only limited installation space.

Optimized unit costs due to an increased output and machine availability ensure high profitability

The new and globally unique machine concept follows the reliable technology of the predecessor series and profits from more than a decade of WAFIOS know-how in the production of rings and wave springs. Numerous modifications of the machine concept have increased the machine efficiency and the product quality guaranteeing an economical production. The sensor-controlled ejection of finished workpieces and the horizontally mounted feed unit for an ideal, slip-free infeed of the profiled material are only two of the many enhancements. The possibility to exchange the guide rollers as a whole unit enables a preliminary set-up outside the machine which increases the machine's availability.

Exceptional variety of parts, production of rings and wave springs of the most diverse geometries and even the smallest diameters

The adjustment of the wave height and of the sinusoidal course of the wave pitch is new. It enables a quicker set-up of the machine and an easier production of complex wave springs - even with a different distribution of spring forces within the spring.
The programmable shearing cut and die cut allow for component-specific cut-off shapes, the adjustable positioning of the cutting height based on the ring/spring type to be produced and a positive influence on the cutting burr. Thanks to the possibility to change from die cut (for rings) to shearing cut (for wave springs) and vice versa, a maximum range of products can be produced, featuring, for example, formed, open or closed ends.
The robust multiple-roller coiling unit with up to 5 coiling rollers ensures highly precise ring diameters, no matter whether they are required to be circular or oval.

High operating convenience due to numerous options with simplified, optimized set-up possibilities and well-proven user interface

The specially developed WAFIOS high-end programming software WPS 3.2 EasyWay enables an efficient programming of ring and wave spring geometries. Numerous pre-configured programs of different ring and wave spring geometries make it easy for the operator to set up new products.

Exchangeable tool cassettes as well as the possibility to save geometry and tool settings shorten tooling times considerably and optimize repeat set-ups and availability. The previously mentioned simple adjustment of the wave height (pitch) and wave shape (sinusoidal course) in the WAFIOS programming system with which the geometry of the waves can be changed by default parameters (no macro programming), facilitates operation and increases application possibilities. The production of wave springs with varying sinusoidal curves and different wave heights is only one of them.

The process optimization tool "***iQ***wavespring" for an automatic diameter correction is a completely new development. ***iQ***wavespring calculates motion sequences and automatically corrects the diameter based on variations of the pitch. The automatic correction makes the set-up process a lot easier and reduces set-up times. Thanks to the new software function also the high quality requirements on the workpiece can be met and the number of rejects is reduced to a minimum.

The innovative and modern machine design of the WAFIOS SNA series is unique, user-friendly, increases the output and availability of the machine and is characterized by a high accuracy of the workpieces. The all-electric ring coiling machine offers the wire-processing industry a wide range of application possibilities. The industry's trend towards ever-smaller installation spaces make wave springs more and more interesting, especially when conventional spiral springs cannot be used due to their height. Companies from the most diverse industries, like, for example, the medical or mechanical engineering industry or the automotive industry and their suppliers can benefit from the SNA series.

Fig. 1: WAFIOS SNA 16 Ring coiling machine

Fig. 2: Wave spring

Fig. 3. Feed / guide roller unit, wire cleaning unit and slip control

Fig. 4 Cutting unit and pitch device

Fig. 5 High-end programming system WPS 3.2 EasyWay