Own grinding software know-how combined with the NUMROTO infrastructure

In Zell am Harmersbach (Germany), in the beautiful black forest, you will find Prototyp-Metwerke Walter, a production site of Walter AG. Walter Prototyp is an innovative division within Walter, with comprehensive know-how in tool grinding. The production department in Zell am Harmersbach and its numerous subsidiaries and sales partners are critical to the success of Walter Prototyp. The company is headquartered in Tübingen, south of Stuttgart. Walter Prototyp has therefore enjoyed a long and fruitful business relationship.

The production department in Zell am Harmersbach and Walter have collaborated successfully for almost three decades. The production area of some 8,000 m² employs approximately 450 people, working shifts.

Mr. Martin Marx, software developer Walter, has been in the service of Prototyp-Metwerke Walter since 2009. He was present at the 10th report, an event in which Walter Prototyp has been sharing its insights and experiences with the industry. Walter Prototyp has always enjoyed a long and fruitful business relationship with Walter.

The Walter production site in the black forest has always been approached with a lot of love and care. For many years, a proprietary software development team has been working on the ground, developing and fine-tuning tools with Walter Prototyp. In parallel with Walter Prototyp, Walter has been working together with Walter Prototyp since 2009. Walter Prototyp-Werke GmbH to optimally combine its own know-how with NUMROTO.

For our customer report we were approached by Walter Prototyp. Mr. Martin Marx, software developer, Walter Prototyp, and adds: "The NUMROTO platform is very good; it is very valuable for us from the development side when in-house developments are quickly and easily geometrically tested with the specific, fast-shaping and collision checks. The development time sometimes takes a little longer than hoped for, there have been more problems with numerics - they are always tested in addition, existing functions are always updated competitively, even if they are very few points."

Other services include the coating, marking, cleaning and surface treatments of tools. Walter Prototyp's production site is certified according to DIN EN ISO 9001, 14001, 45001 and 50001. With its in-house Walter Academy, Walter AG also focuses on continuous professional training of its employees.

Moreover, Walter Prototyp has been working together with Walter Prototyp since 2009. Walter Prototyp-Werke GmbH to optimally combine its own know-how with NUMROTO.

From a technical point of view we present the most important new functions of NUMROTO version 4.1.2. In particular, NUMROTO version 4.1.2 enables the most important new functions of NUMROTO version 4.1.2.

The most significant innovation is the "Flash" high-feed milling cutter. The "Flash" high-feed milling cutter is the latest evolution of the "Flash" high-feed milling cutter. The "Flash" high-feed milling cutter is according to the NUMROTO standard. The "Flash" high-feed milling cutter is developed across generations, while the remaining infrastructure and must be protected! This flexible concept allows the knowledge built up by the company’s own algorithms and path calculations, and thus the know-how of the tool manufacturer is preserved. The "Flash" high-feed milling cutter is the latest evolution of the "Flash" high-feed milling cutter. Walter Prototyp-Werke GmbH to optimally combine its own know-how with NUMROTO.

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Reference profile Grinding and form compensation

The form compensation feature is characterized by the following features:

- The measuring unit may be used for the measured profile as a CMM or in NUMROTO. No external compensation software is required as the compensation is performed within the software.
- The measuring data can be saved and used in the future for reference profiles.
- The compensation can be calculated individually for each axis.

The correction strategy can be managed in two ways:

- By direct corrections at the user's workplace. This includes:
  - The clamping error during unclamping and re-clamping must be determined individually.
  - NUMROTO provides "calibration tags" for this purpose.
- The measuring machine can be adjusted with a slight service vector in the grinding machine. In this case, the compensation is carried out automatically via a software module.

The data exchange between NUMROTO and the measuring machine can be achieved via the XML data interface or by means of the file format (e.g., also by a script program). In this way, the compensation data can be transferred and used automatically for each project.

The compensation for grinding the nominal profile is not compensated with the software function. This is achieved by assigning a series of compensation values to the tool under "Reference profile" and the system automatically determines the appropriate tool compositions. This results in a specific compensation value for each axis.

Grinding with form compensation in the closed loop is also called "form compensation". The measured profile and the measuring results are transmitted via the XML data interface or by means of the file format. The correction strategy can be managed in two ways:

- By correcting the subsequent workpiece. In this case, the form compensation is carried out cumulatively via a series of measurements. This filtering is clearly visible in Figure 3: Two clear "outliers" can be seen in the measured profile. These are caused by different procedures and can be deleted through further improvement of the form compensation.
- The compensation also works in conjunction with the "recalculate" button. This is superimposed on the existing compensation (see Figure 4). The correction strategy can be managed in two ways:
  - The clamping error during unclamping and re-clamping must be determined individually.
  - NUMROTO provides "calibration tags" for this purpose. The measuring machine can be adjusted with a slight service vector in the grinding machine. In this case, the compensation is carried out automatically via a software module.

Release Notes 4.1.1 – 4.1.2

Numerics

- Various optimizations for the flute-X operation (calculation points for flute fitting).
- New default values for tip relief operations: cutting angle, rake angle, etc.
- New default values for back relief operations: cutting angle, rake angle, etc.
- Many additional values are scaled automatically when the output format is changed.
- Dimensions can be edited individually.
- SVG files can be displayed.
- In the default values "Probe wheels" the "calibration tags" can be defined for the external measurement side.
- For wheel sticking, it is now possible to optionally move to the approach distance when off-setting for the next clamping position.
- "Meas-view": In a sequence production, the positioning of the grinding tool is automatically calculated using the average of the already processed components. This makes it possible to use the "Meas-view" function for the probe positioning.
- "Geometry": The compensation also works in conjunction with the "recalculate" button. This is superimposed on the existing compensation. The correction strategy can be managed in two ways:
  - By correcting the subsequent workpiece. In this case, the form compensation is carried out cumulatively via a series of measurements. This filtering is clearly visible in Figure 3: Two clear "outliers" can be seen in the measured profile. These are caused by different procedures and can be deleted through further improvement of the form compensation.
  - The compensation also works in conjunction with the "recalculate" button. This is superimposed on the existing compensation (see Figure 4). The correction strategy can be managed in two ways:
    - The clamping error during unclamping and re-clamping must be determined individually.
    - NUMROTO provides "calibration tags" for this purpose. The measuring machine can be adjusted with a slight service vector in the grinding machine. In this case, the compensation is carried out automatically via a software module.

Release Notes 4.1.8 – 4.1.2

NUMROTO Copyright in China

We are pleased to announce that you are now officially in possession of the copyright of NUMROTO software in China. This will make it easier for us and our partners to look over presentations of our products and licenses in the coming months. Our lawyers are convinced that the measures we intend taking in the coming months will further enhance our support of all legal users of NUMROTO. Our lawyers are convinced that the measures we intend taking in the coming months will further enhance our support of all legal users of NUMROTO.