

**Setting with ZEISS CALYPSO preset**  
from an EDM machine to an automated cell



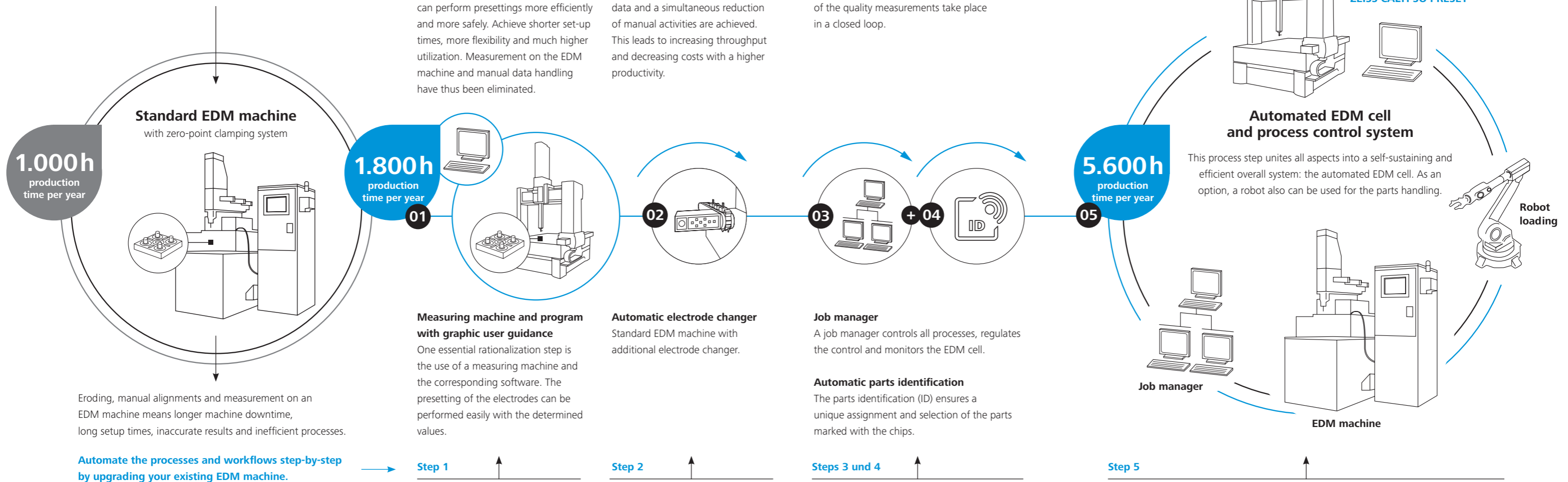
# Let your EDM machines do the production – we'll take care of the measurement.

With a ZEISS coordinate measuring machine and ZEISS CALYPSO preset software, you'll be able to preset your electrodes quickly and safely. You thus will benefit not only from shorter machine setup times, but also from greater accuracy and a considerably increased productivity. Invest in your production of the future step-by-step.

Streamline your processes and use a coordinate measuring machine to achieve more eroding throughput and measure more accurately.

<p><b>+</b></p> <p><b>PRODUCTIVITY &amp; MACHINE EFFICIENCY</b></p>	<p><b>+</b></p> <p><b>ACCURACY &amp; PROCESS STABILITY</b></p>	<p><b>+</b></p> <p><b>WORLDWIDE COMPETITIVENESS</b></p>	<p><b>+</b></p> <p><b>PREREQUISITE FOR 24/7-PRODUCTION</b></p>
<p>Increase in productivity of all EDM machines through optimal use of the existing capacity. Shorter production times of the EDM machine with a higher throughput.</p>	<p>Higher quality and process reliability via the use of a CMM in a batch size 1 production process and the generation of ZEISS quality data.</p>	<p>In addition to faster delivery dates and a better adherence to schedules, reduced production costs and costs per component also are achieved.</p>	<p>The integration in automation processes is supported by close cooperation with the integrators and with ZEISS.</p>

Do you still clamp electrodes and workpieces and align them manually? Do you achieve a maximum of 1000 erosion hours per year and thus tie down a specialist completely?



## Your first step towards enhanced efficiency

With a ZEISS coordinate measuring machine and ZEISS CALYPSO preset, you can perform presettings more efficiently and more safely. Achieve shorter set-up times, more flexibility and much higher utilization. Measurement on the EDM machine and manual data handling have thus been eliminated.

With a step-by-step upgrade of an EDM machine which already integrates a ZEISS solution at an early stage, both the generation of traceable quality data and a simultaneous reduction of manual activities are achieved. This leads to increasing throughput and decreasing costs with a higher productivity.

The ZEISS measuring system is a fixed constant within the complete cell; the offset data are thus automatically sent to the job manager. The logging and use of the quality measurements take place in a closed loop.

Eroding, manual alignments and measurement on an EDM machine means longer machine downtime, long setup times, inaccurate results and inefficient processes.

Automate the processes and workflows step-by-step by upgrading your existing EDM machine.

### Measuring machine and program with graphic user guidance

One essential rationalization step is the use of a measuring machine and the corresponding software. The presetting of the electrodes can be performed easily with the determined values.

### Automatic electrode changer

Standard EDM machine with additional electrode changer.

### Job manager

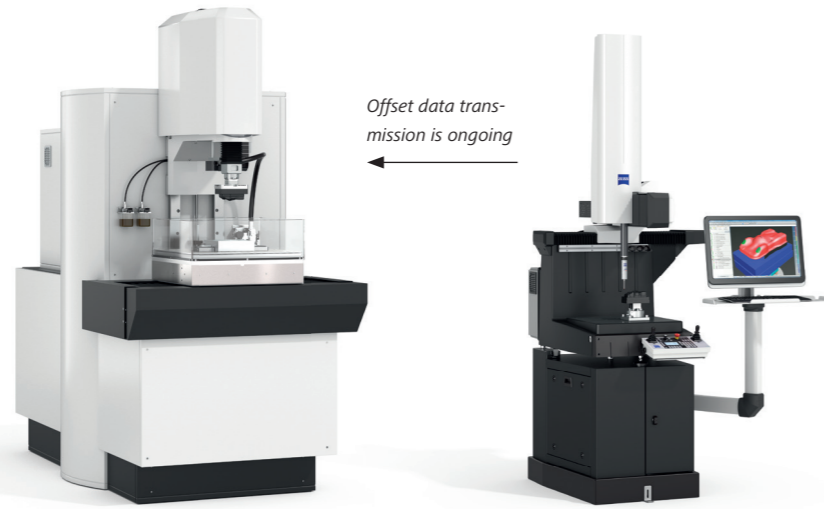
A job manager controls all processes, regulates the control and monitors the EDM cell.

### Automatic parts identification

The parts identification (ID) ensures a unique assignment and selection of the parts marked with the chips.

# Manual presetting and measurement on the CMM

ZEISS DuraMax vs. EDM machine – a direct comparison



EDM machine

ZEISS DuraMax with ZEISS CALYPSO preset

## Manual offset measurement on the EDM machine

The offset of electrodes and workpieces often is still measured directly on the EDM machine. But this method poses problems. While the EDM machine is measuring the offset, it is not producing any parts.

Because this measurement on the EDM machine takes a lot of time, the productivity of the machine decreases drastically.

The accuracy of the measurement is less precise in direct comparison to a coordinate measuring machine. The quality of the workpiece thus decreases.

In addition, the quality of the electrode's shape, which directly affects the quality of the workpiece produced, cannot be examined with this method. The result is long setup times during which the machine is not producing anything, long throughput times in production, missing

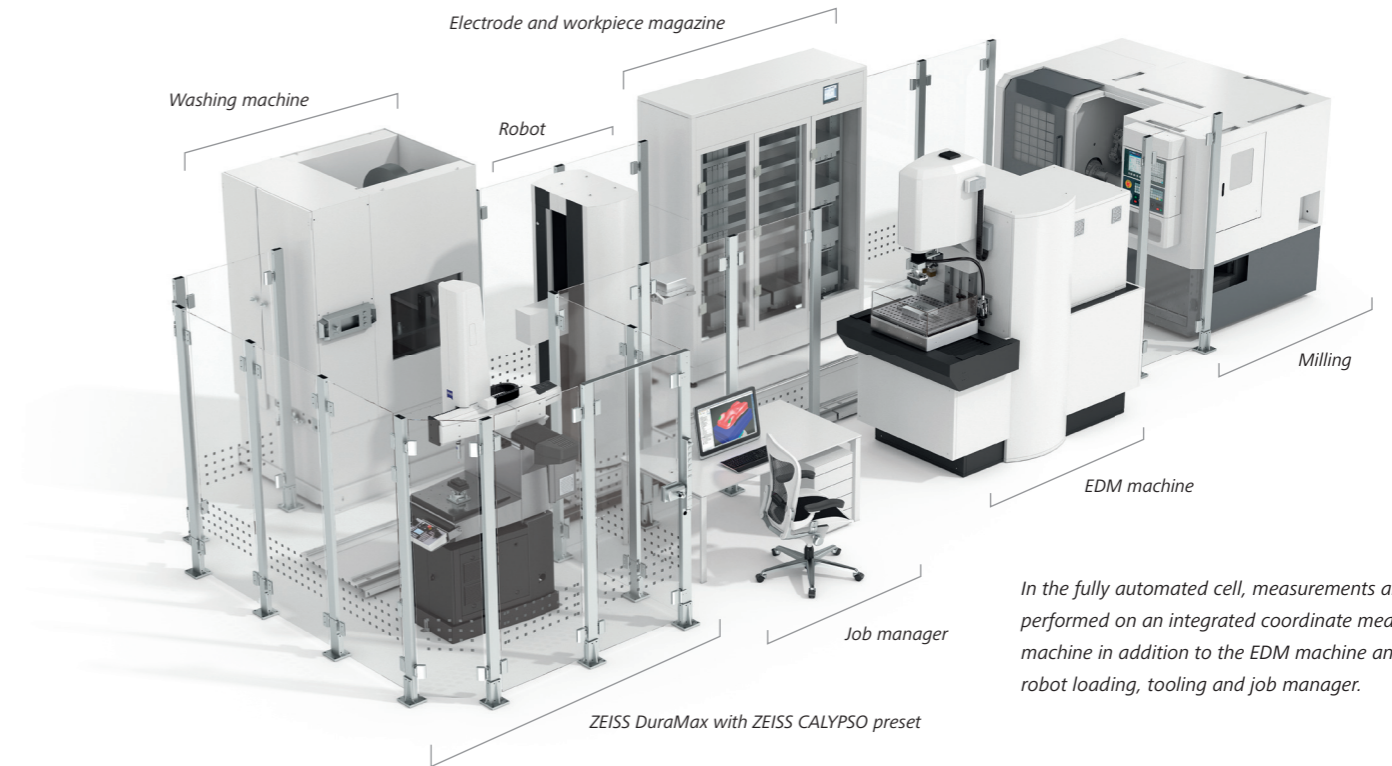
quality information, and finally, an excessively low machine throughput.

## A ZEISS solution for your production that pays off

The illustration on the right side depicts production without using coordinate measuring machines (CMMs), (see Fig. 01). Four EDM machines are used for production here. In the bottom illustration (see Fig. 02), only two EDM machines are required to produce the same annual volume

# Fully automated EDM cell

With the ZEISS DuraMax, ZEISS CALYPSO preset & job manager



In the fully automated cell, measurements are performed on an integrated coordinate measuring machine in addition to the EDM machine and incl. robot loading, tooling and job manager.

as previously produced by four EDM machines. The CMM thus enables the EDM machine to achieve a much higher degree of utilization while at the same time decreasing production and investment costs.

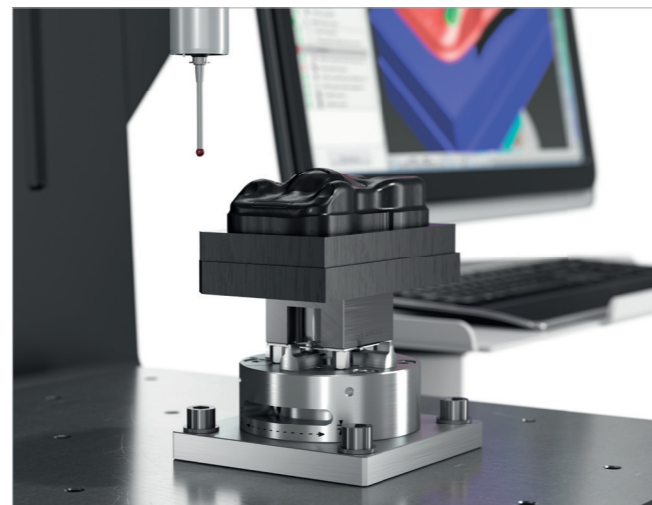
## One more step towards an efficient solution

Manual measurement on a coordinate measuring machine already pays off with your first EDM machine: shorter setup times, considerably longer machine running times, increasing throughput and the generation of quality data increase your

overall productivity. The most efficient expansion stage is a fully automated cell. In it, a process control system performs all work. The key component of such an EDM cell is the job manager. It assumes the complete interaction between software and hardware such as e.g. automated removal from the magazine and robot-supported loading and unloading of electrodes and workpieces.



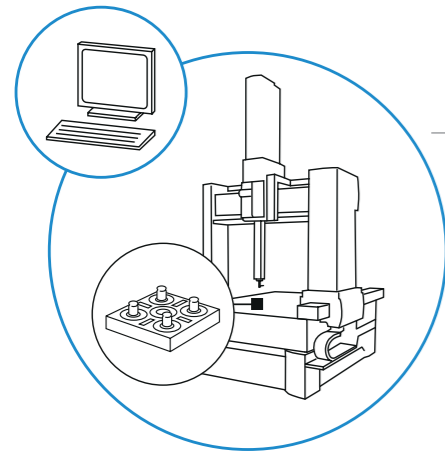
Measurement on the EDM machine yields a lower production volume, since long EDM machine setup times result.



Manual measurement on an additional coordinate measuring machine resulting in higher productivity while at the same time reducing costs.



# Simple offset and quality measurement: from the electrode to the workpiece and the clamping system



ZEISS DuraMax



ZEISS CALYPSO preset



## Hardware and software comprise a single unit and a direct connection to the EDM machine.

From manual pallet placement right up to the fully automated process control system, the ZEISS CMM and ZEISS CALYPSO preset let you measure offset and rotation when exchanging electrodes and workpieces in a matter of minutes. The ZEISS software has open interfaces to which it transmits the offset data with a direct connection to the EDM machine. If a job manager is integrated, it transmits the offset data directly to the machine.

## ZEISS CALYPSO preset

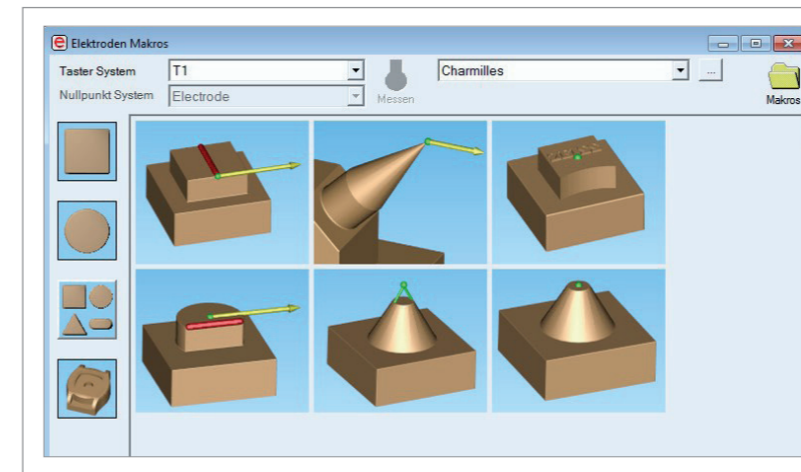
The software offers a complete library of all current macros for presetting electrodes and workpieces. A graphic user guidance helps to configure the measuring run.

## What ZEISS CALYPSO preset can do

The software is used to simplify the presetting and quality inspection of electrodes and workpieces. First of all, the zero point is set on the clamping system. You can then select a macro and probe the electrode as well as the

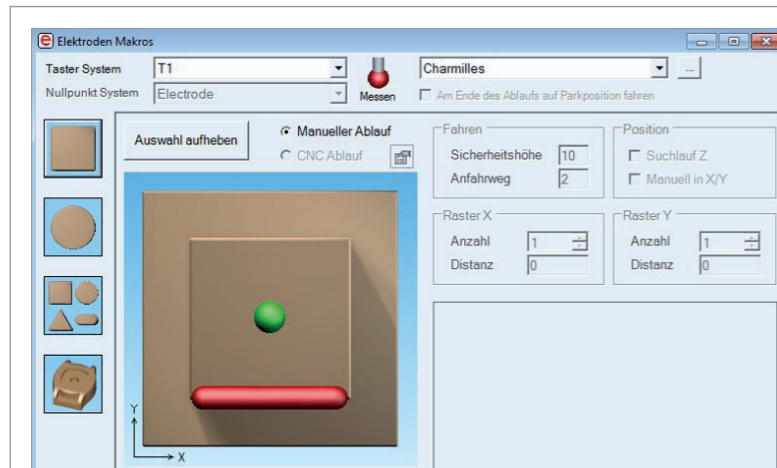
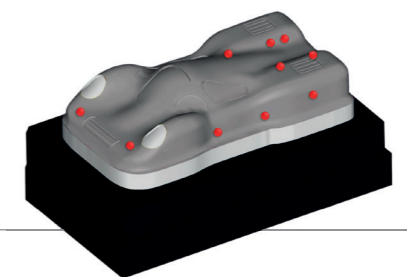
workpiece. In the next step, a file featuring the offset data is available, which can be exported directly to the EDM machine. All current EDM machines can be connected directly.

Data export is supported for all relevant manufacturer-specific formats. As an alternative to the connection to a job manager, the offset data and all relevant quality data can be transferred to the latter. The task of the job manager software here is to start the measurement and receive the offset data in order to subsequently send the data to the production systems and log the data of the

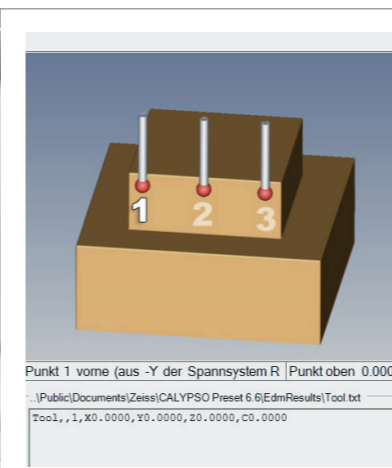
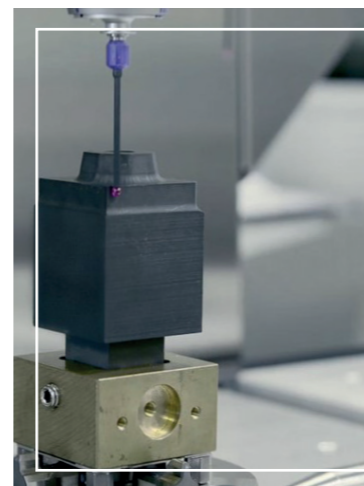


02 ZEISS CALYPSO preset features a large library of electrodes for presetting and a large number of predefined electrode shapes for selecting the respective application.

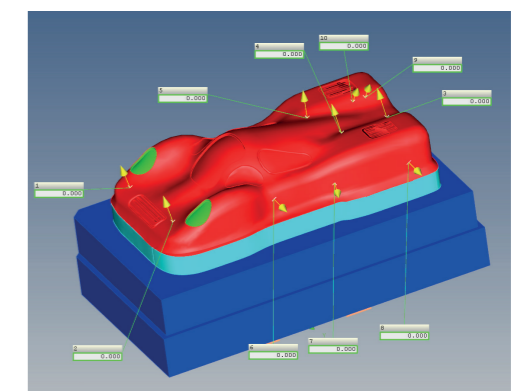
quality measurement. ZEISS CALYPSO preset is compatible with job manager software from Zimmer & Kreim, Georg Fischer/System 3R, Röders and EROWA/CERTA and many more.



01 ZEISS CALYPSO preset features simple handling with an interactive user interface in addition to offset measurements of electrodes and workpieces.



03 Definition of the measuring points in the first step, simple quality measurement of electrodes against the CAD model with a subsequent presentation of the results. The measurement plan is created automatically; the undersize of the electrode also is considered.



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