**C**omputer **A**ided **A**ccuracy **C A A**

Before Computer Aided accuracy (CAA) was introduced in coordinate measuring systems and processing machines, the guides themselves and their assembly must be realized with the least possible deviation.

Practice shows that some deviations are constant over time, while others are not.

**Long term stabile**

Straightness, pitch, yaw, roll, ...

**Short term or event related**

e.g. Squareness. A violent collision can change the angles.

Therefore, all deviations (the 21) over the entire work volume are determined using standards (laser, tracer) and stored in the CAA-File.

The number of step points varies depending on the accuracy specification of the system.

In relation to the system zero point, each current measured point can then be "corrected". Those values are used for the further calculations by the measuring computer. Normally, this correction is done directly in the control of the system.

**Acceptance at producer**

The system must fulfill the specification at the end of production. Test OK 🡺 system free for shipping.

**Acceptance at customer**

After the onside installation, the service technician uses a step gauge block to determine some relevant correction data e.g. the current squareness and linear correction and transfer them to the CAA file. Test OK 🡺 system released for production.

**Yearly or after event**

Collision 🡺 Check the perpendicularity, if necessary, adjust the CAA-File and then verify the specification.

**Result**

**Positive** System can be released.

**Negative** Extended search for causes and their elimination. In the "worst" case, the complete CAA-File of the system must be determined again.

Some service technician at customer can update CAA-Squareness (Special tool and qualification), because they now responsible for the certification.

**Conclusion**

* The 18 guide and 3 squareness errors are used to determine the CAA-File and only visible as correction values for the producer of the system (see global patent, details normally not public). Some additional equipment like rotary table or probe heads have a one special CAA-File.
* The MPE, MPL, ... values inside the standardization defines the specification of the system and can be checked by the operator.