# HAUSER 2000 Demo
# Questions & Answers

**Q: IS AN AUTOMATION WITH INTEGRATED MEASURING POSSIBLE?**

A: Automation (pallet loading) has existed on Hauser machines for 25 years.
However, the final solution for very high accuracies on the parts does not currently exist. Positioning uncertainty of the pallet, measuring error and tool clamping error in the grinding motor are all giving a total error value that is not acceptable. An in-process measuring software needs to be created. We are working on it, as we think that this request will come more often.

**Q: WHAT IS THE AREA OF APPLICATION?**

A: The biggest application area is tooling for various industries (automotive, food packing…), followed by optical tooling like lens plates.
Aerospace industry is a very important segment (civilian, military, helicopter…).
We also have several applications in medical, IT, car racing and other types of industries.

**Q: WHAT ARE THE MILLING POSSIBLITIES?**

A: Basically, a jig grinding machine is not a milling machine.
Even if the mechanical built up is nearly similar to a milling machine, there are some specificities that are allowing the very high accuracy of jig grinding and are not compatible with milling. The specifications of the grinding motors, feed rates, grinding head construction…using a jig grinding machine as a milling machine would destroy it and also occur a loss of accuracy. However, there are two types of milling possible:

- Bottom milling with a face milling cutter of maximum Ø 8 mm.
- Hard milling in 60 - 65 HRC steel with ball nose cutters.

The forces have be vertical, not from the side.

**Q: WHAT IS THE MATERIAL TYPE OF THE STRUCTURE OF THE MACHINE TO REACH THIS ACCURACY?**

A: The materiel is exclusively cast iron.
To reach such accuracies, the structure has to be scrapped (eight weeks of work per machine) before assembly.
It is also not possible to use composite material combined with cast iron, as the dilatation factors are not the same.

**Q: IS IT POSSIBLE TO DEAL DIRECTLY WITH HAUSER FROM THE UK FOR PARTS AND SERVICE.**

A: This is not possible, as we have an exclusivity agreement with DF Precision Machinery.

**Q: WHAT DOES THE MACHINE COST?**

A: This is very much depending on the specification of the machine, and if the machine is part of a turnkey project.
The very simple basic machine execution is around $1'000'000.
It may go up to $2'500'000 if it is related to a turnkey project with providing grinding technologies, special designs on accessories and clamping systems, automation.

**Q: WHAT IS THE LEAD TIME FOR DELIVERY?**

A: The lead-time for delivery is 12 months.

**Q: HOW MANY MACHINES ARE CURRENTLY IN THE USA?**

A: There are actually 26 machine H2000 delivered (38 ordered).
One machine is in USA.
It is the most sophisticated machine we built.
But we are not allowed to give technical information, as it is a "government company" in the military segment.

**Q: PLEASE CAN YOU DISCUSS THE NATURE OF THE SLIDEWAY DESIGN (LINEAR RAILS / HYDROSTATIC FOR EXAMPLE) AND THE BED MATERIALS**

A: This are manually scrapped guideways (cast iron), with a small pressurized oil lubrication.
We made some studies and tests concerning linear rails and hydrostatic slideways, and we could not reach the expected accuracies with it.
We have since 2013 linear motors and hydrostatic bearings on the Z way (170 mm).
This was acceptable on accuracy.

**Q: WHICH ACCURACIES ARE FEASIBLE? WHEN DO YOU CHOOSE A JIG GRINDING MACHINE INSTEAD OF A MILLING MACHINE?**

A: Jig grinding is a niche market and around 100 machines total are sold per year in the world. But it is stable since around 20 years.
As a general answer, it can be said that a jig grinding machine can achieve tolerances that are at half of a milling machine or less.
Means achieve 1- 2 µ where milling machine can achieve 4 µ.
This is compared to the 10 most accurate milling machines.
There are maybe 50-70 milling machine manufacturers in the world, but only 10 are coming closed to jig grinding (this not considering the economical aspects).