

NEW TYPES OF GEAR GRINDING MACHINERY
The SAMPUTENSILI mod. S400GT multi-purpose machine

With the aim of reducing costs and using just one machine, Samputensili S.p.A. has designed and optimised a multi-purpose grinding machine which can perform different types of grinding utilising different types and sizes of grinding wheels. This grinding machine is called the S400GT. In the following pages we give some information about the characteristic of this machine.

Technological progress which has made a new generation of grinding machines possible

- *Fast and powerful numeric controls with digital technology*
- *The possibility of using linear motors*
- *The introduction of direct drive and brushless motors*
- *The use of high resolution optic transducers*

One of the most important innovation are the introduction of linear motors for the linear movement of the slides

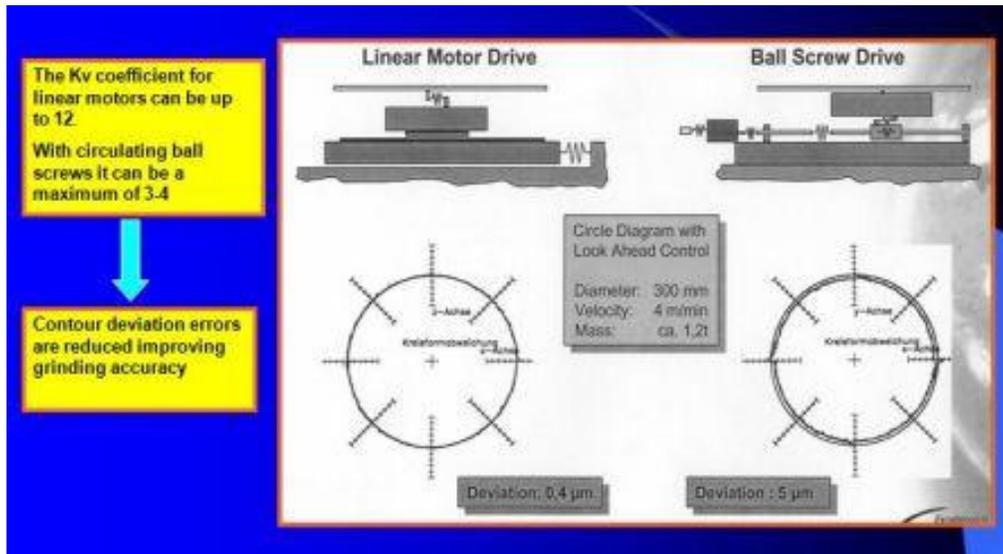


Fig.N°1- *Reduction of the contour deviation error with linear motors*

The function of the axes are (see fig. N°2):

- *Asse A: grinding spindle swivel angle*
- *Asse B: grinding wheel rotation*
- *Asse C: Work spindle rotation/indexing*
- *Asse X: Grinding spindle radial movement*
- *Asse Y: Grinding spindle tangential movement*
- *Asse Z: Work spindle axial movement*
- *Assi B11-B12: Dressing of grinding wheel*

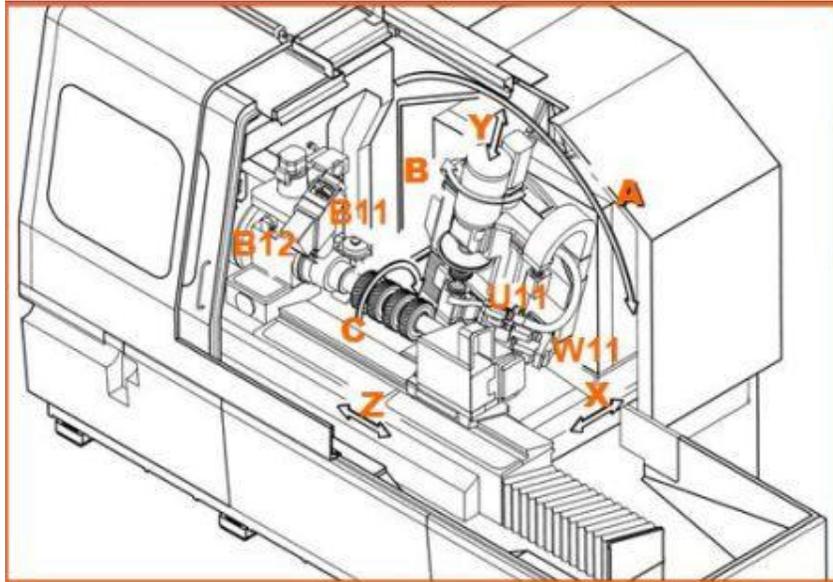
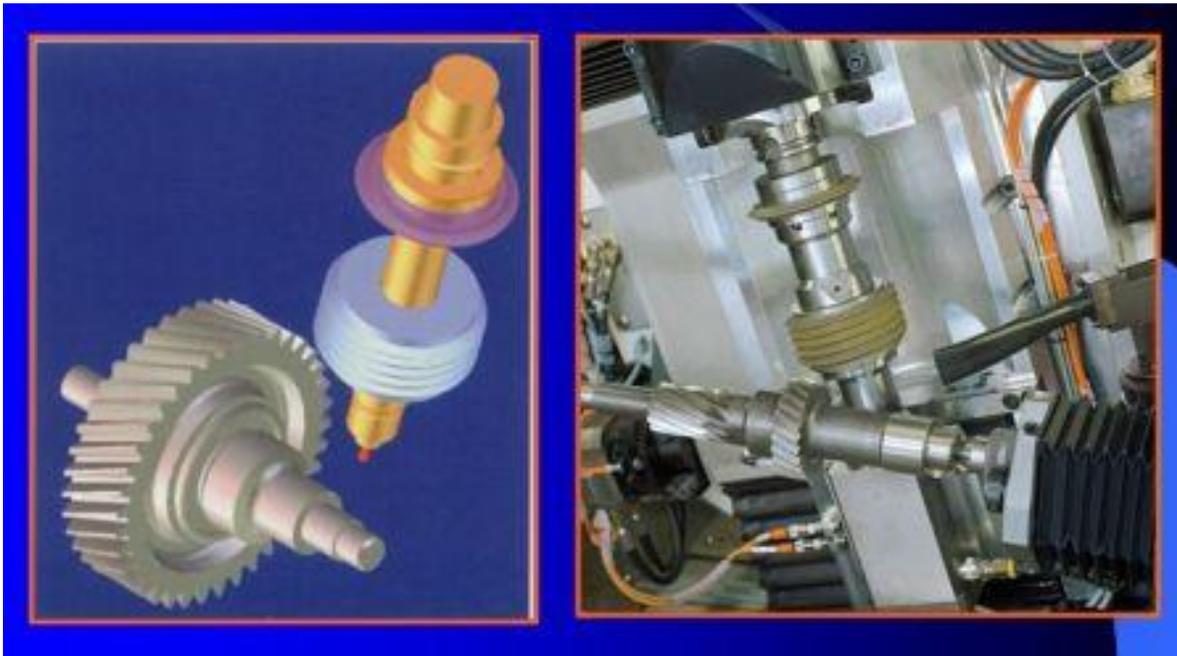


Fig. N°2- Configuration of the axes

The S400GT grinding machine can combine two different types of grinding wheel on the same spindle and can change over to another grinding method within the very same cycle. Some examples of possible combinations are shown on the following figures.



Fig, N°3 - Combination of worm wheel for high speed roughing and form wheel for high precision finishing.

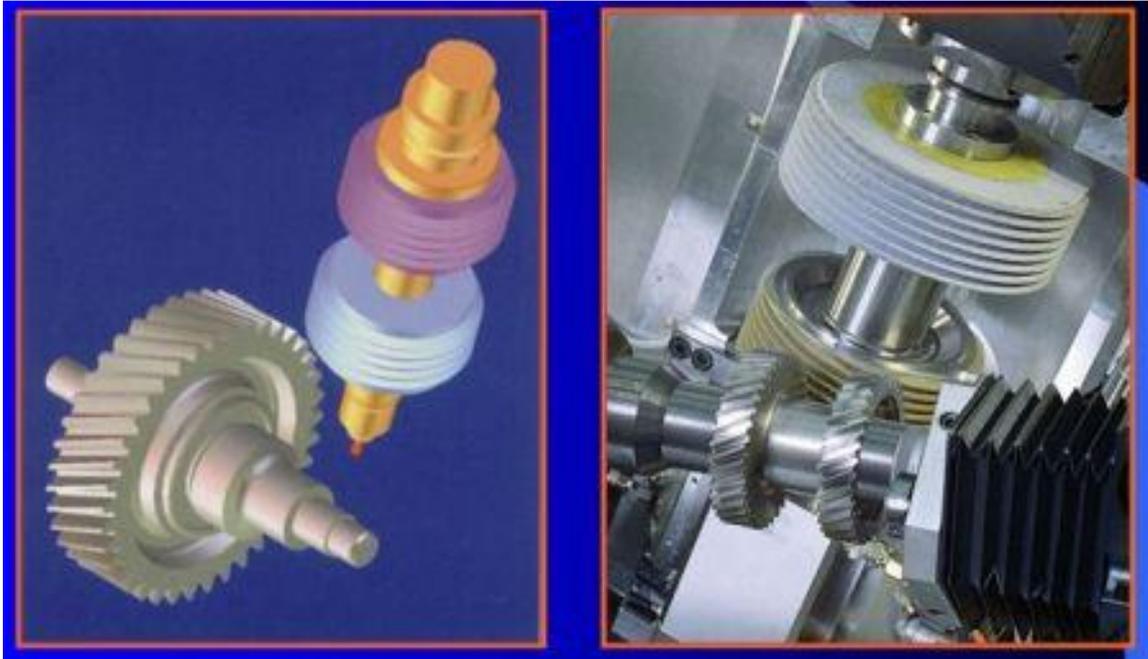


Fig. N°4 - Combination of two different types of worm wheels with two different grains for high-speed roughing and finishing or for grinding two different gears

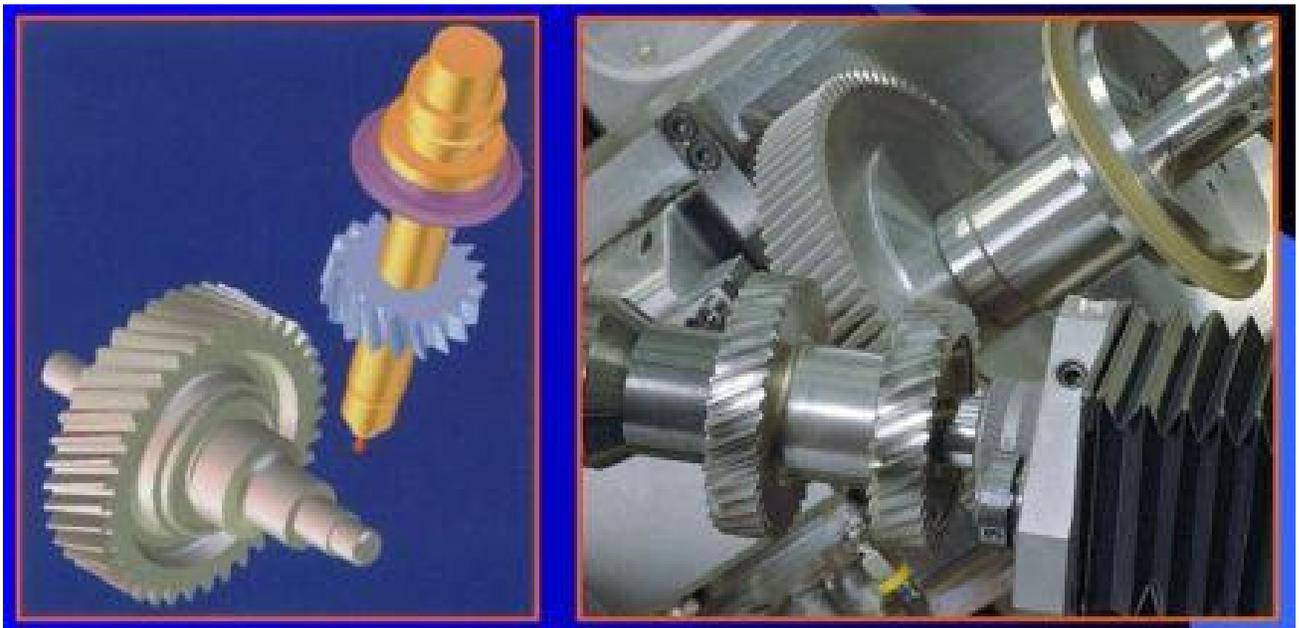


Fig.N°5 - Combination of a form wheel and a honing tool (external honing) for high precision grinding and profile finishing with lapping



Fig. N°6- *Combination of two different types of form wheel for high precision grinding of two different gears and combination of a CBN worm wheel and a ceramic honing tool*

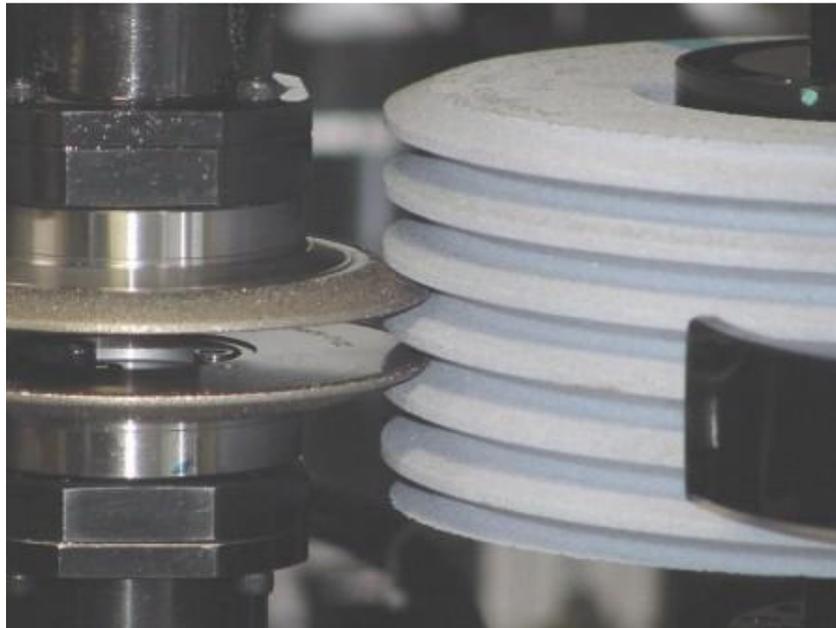


Fig.N°7- *Diamond dressing of the worm wheel with PTF dressing unit: one disc per flank*

After profile dressing it's necessary to reduce the outside diameter



Fig. N°8- *Diamond dressing of worm wheel external diameter*

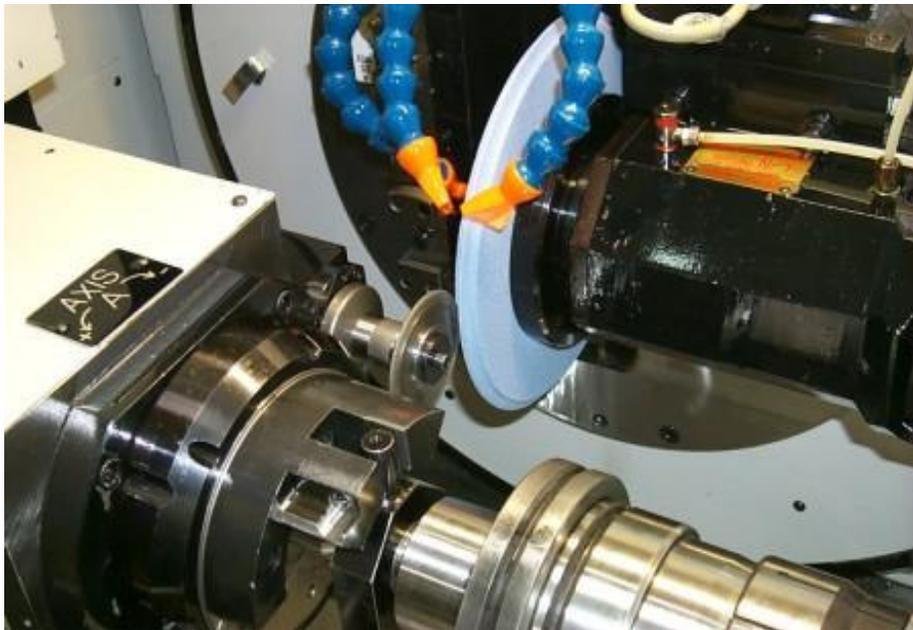


Fig.N°9- *Diamond dressing of a form wheel with a diamond dressing disc which dresses along the whole grinding wheel profile*

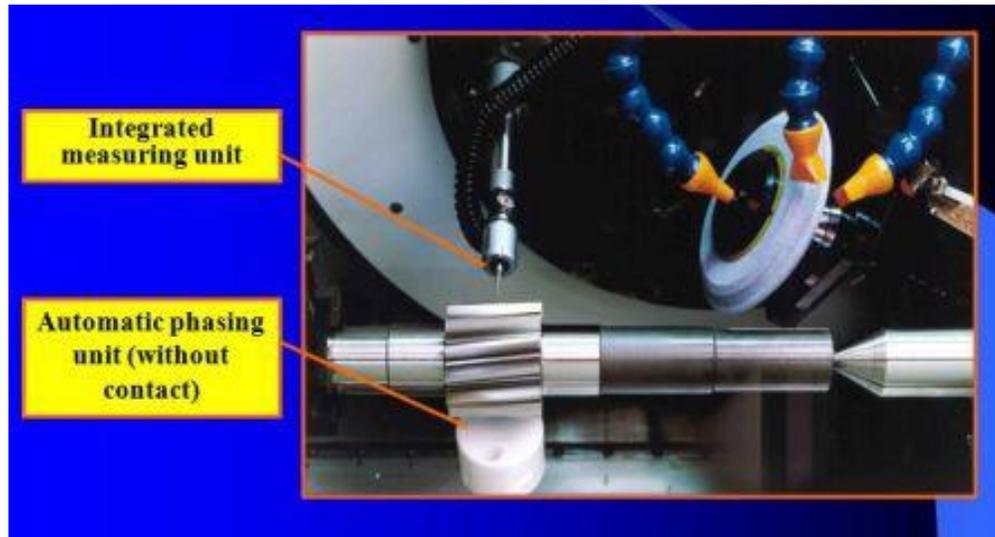


Fig.N°10- *Two important options: on-machine inspection and automatic phasing*

Other options

- *Interpolated tool withdrawal in case of power failure or emergencies*
- *Remote diagnostics for software updates and troubleshooting*
- *Comprehensive monitoring and diagnostics system for machine, power unit and control system*
- *Fire extinguishing system*