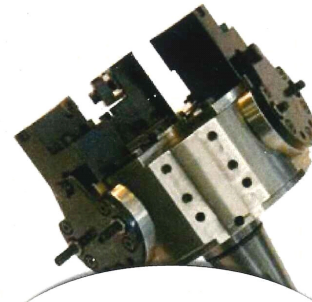
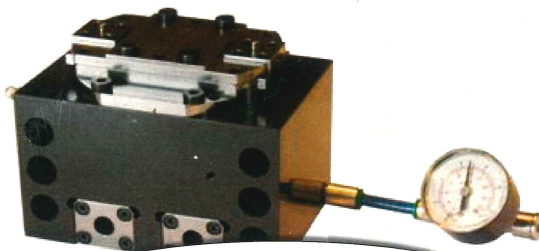
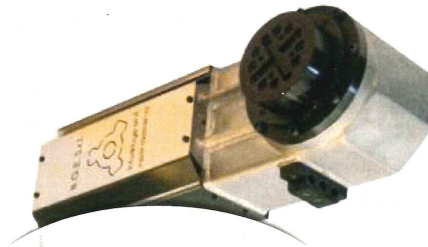
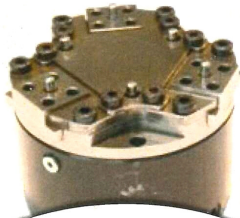
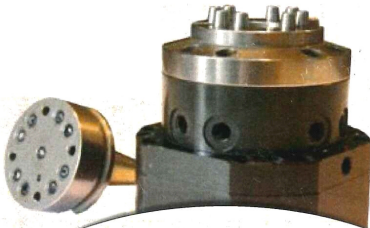




B.G.E.



PRODUCTION SOLUTIONS



PATENT

PLIERS

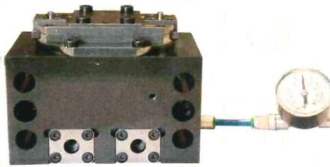
We have developed 43 models of pliers with a clamping force of 20 [N] up to 30.000 [N]. The smaller models are designed to house position sensors, while all models are preset for pressurization, lubrication and cooling. The high safety degree and the use of very hard and resistant materials, for mobile parts, and hard oxidized aluminium, for pneumatic parts, guarantee high durability of all models.

The low roughness of the surfaces allows not only to reflect heat but also to modulate the working pressure and hence the clamping force of the pliers, which remarkably reduces component wear.

The long stroke already available on smaller models has convinced us to develop the W version, i.e. pliers with reduced force but double stroke in order to facilitate the grip of families of workpieces.



INTERNATIONAL PATENT

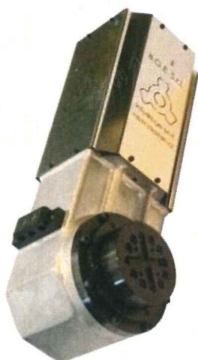


CONNECTION-FREE PLIERS FOR MOBILE SYSTEMS

This patented group can be applied to all actuator models of our production. These pliers complete with valves allow closing, opening and pressure variation operations in any machine position without the need of connection pipes and pressure distributors.

Simple pressure change stations provide different pressures at all work stations.

A single change station allows loading and unloading of the workpiece. If several valves are mounted on a single actuator, multiple functions are available, for example you can rotate the workpiece when the pliers are closed, in order not to have hidden sides of the workpiece during machining or assembly operations. This last solution allows the user to arrange the workpiece in the desired position within the production line, also facilitating manual assembly. Also hydraulic actuators can use the same technique by means of special feeders. For example, workpieces can be blocked on a pallet without the aid of control units, distributors, valves and pressure relief electrovalves.



SEVENTH AXIS

This controlled axis, if properly air cooled, allows you to rotate anything is fixed to the spindle with a max torque of 600 [Nm].

The different cooling of the components, together with the thermal insulation structure, allow the use of this axis even in proximity of heat energy sources.

All devices and operating features of this group have allowed its continuous use 24 hours a day for several years, despite the presence of high heat energy sources.

It is currently used in foundries for gravity casting with the following three requirements:

- special care in the pouring phase
- reduced size to enhance robot control
- reliability over time to keep constant the pouring parameters.

SPEED MULTIPLIERS

All our differential planetary speed multipliers are covered by patent.

The differential system allows the group to minimize any misalignment between the input cone and the output spindle.

This misalignment control is possible since the group is obtained without moving the workpiece during execution.

In addition, the fact that the group is differential allows the bearings to revolve at lower speed and consequently either to reduce the thermal effect or to increase the number of revolutions.

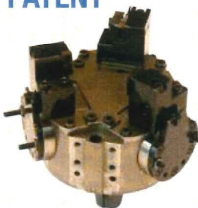
The cold pressurization keeps the temperature constant and therefore reduces the variables depending on thermal expansion and the durability of high speed bearings.

The output of such pressurization can be directed to the tool front face, thus lowering the tool temperature in the points where the machining forces interact.



INTERNAZIONALE PATENT

**INTERNATIONAL
PATENT**



TOOLHOLDERS WITH 3 FIXED AND/OR MOBILE CARRIAGES

The multi-carriage toolholder is a versatile tool that allows you to run several jobs at the same time, with the possibility of having independent carriages or synchronized movements. The group has no transmission for the control of the individual carriages, thus eliminating all constraints that might hinder their movements.

The group can turn, face, butt, cut, thread several threads at the same time or perform several runs simultaneously, roll, stamp, polygonize, deform and function as multiple facing head.

The great versatility of mobile carriages is completed by a set of fixed tools that allow reducing the number of transfer units and hence investment costs.

The carriage force can be 250, 500, 750 [kg] per carriage. Depending on the desired size, the group can finish completely a workpiece side in a single operation, because the individual carriages can move in opposite directions. In addition, the hydraulic drive dampens any working vibrations.

The group can be used with all types of spindles, except for those with very high peripheral speeds.



QUICK RELEASE TOOL

Designed to allow quick changes of pliers, it has become a very useful tool for machinery set-up avoiding production stops due to adjustment. Thanks to its eight supplies and pressurization, lubrication and cooling systems, it can be used as connection tool for complete equipment and allows production changes in a few seconds.

In addition, thanks to its ISO 30 cone connection with 8 different supplies, if the machine cycle time allows it, it is possible to use several deburring and smoothing spindles, all compensated, that if mounted on a single connection cone allow the workpiece deburring. This deburring and smoothing operation is costless since it is obtained during the machine cycle.

The coupling load is 100 [kg] ÷ 320 [kg], depending on the models and springs required.

The quick release tool does not disconnect from the group, even when air pressure is absent, because pressure is required only for the release.

PATENT

