

Gleason



genesis[®]

130SV(C)
Shaving
Machine

KEEPING THE WORLD IN MOTION

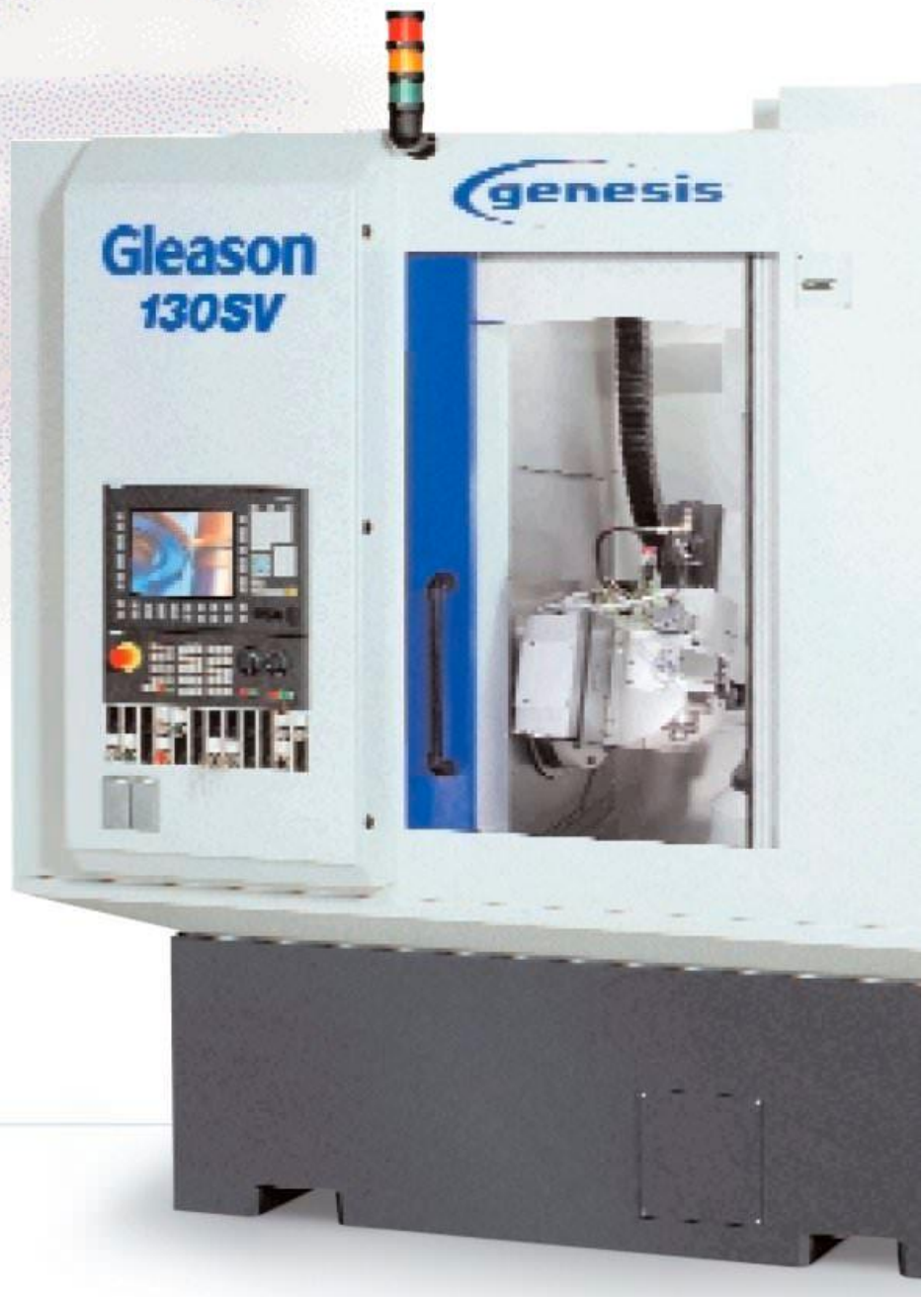
Introducing the Genesis® 130SV Shaving Machine: The next generation in gear finishing technology.

Genesis®: This family of gear production equipment, built on a common platform to optimize capabilities – and better serve the world of gearing.

The Genesis 130SV Shaving Machine is a compact, highly productive machine for the **fine finishing of soft spur and helical gears with an outside diameter as large as 150 mm.** The Genesis 130SV incorporates the most modern features and capabilities required by today's gear production.

These include:

- Optional integrated NC chamfering and deburring unit.
 - Optional POWER SHAVING™ process, capable of significantly reducing plunge shaving times.
 - Small footprint: 7 sq. meters (73 sq. ft.), including all hydraulics, lubrication, chip removal, coolant and pneumatic systems.
 - Fully self-contained machine, easily moved as a single unit without disconnecting auxiliary support systems.
 - Easy Access Service Module to consolidate hydraulics, lubrication and pneumatics into one location.
 - Single-piece, mineral cast polymer composite machine bed providing superior vibration damping and thermal stability.
- New shaving head design delivers plunge and diagonal shaving capability, without the use of a cradle.
 - An innovative stock dividing system mounted right on the shaving head saves time and requires no changeover between different parts.
 - A highly efficient magnetic chip filter, easily re-located to meet any cell/system floor space requirement.
 - A high speed loading system to reduce load/unload cycles.
 - Direct-drive spindles for reliability and wide speed and torque range.
 - Latest Siemens controls, with Gleason Spheric™ Shaving technology software.
 - Windows® based user-friendly software and PC front-end.
 - Common design with common parts shared by all the models in the Genesis family.



Common platform, superior results.

The **Genesis** machines share the same single-piece machine bed, cast from an advanced polymer composite material. The polymer composite is an ideal substitute for conventional cast-iron because the castings can be made to very tight finished tolerances fast and precisely. In addition, the column, typically machined separately and then assembled, is instead integrated right into the casting. This helps to ensure maximum rigidity.

The use of the same common platform design is an important element of lean manufacturing, dramatically reducing lead times for **Genesis** machines.

The common platform of all **Genesis**® machines improving short lead times, easy serviceability and reduces storage of spare parts.

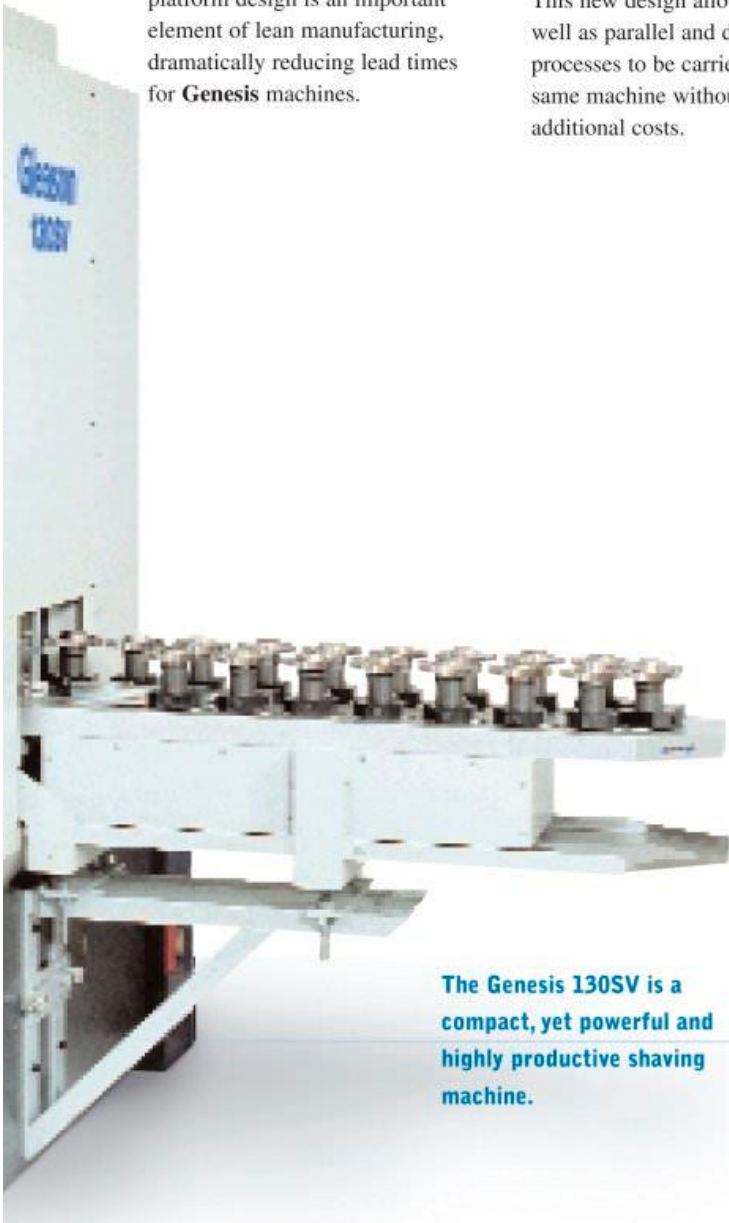
Shaving head design.

Shaving heads used to be fitted with a separate cradle, and earlier still, machines were equipped with a swivel table to generate tooth flank corrections. The shaving head for the **Genesis** has been simplified. Corrections are now made using the Y, X and Z axes and Gleason Spheric™ shaving software. This new design allows plunge as well as parallel and diagonal shaving processes to be carried out on the same machine without incurring additional costs.



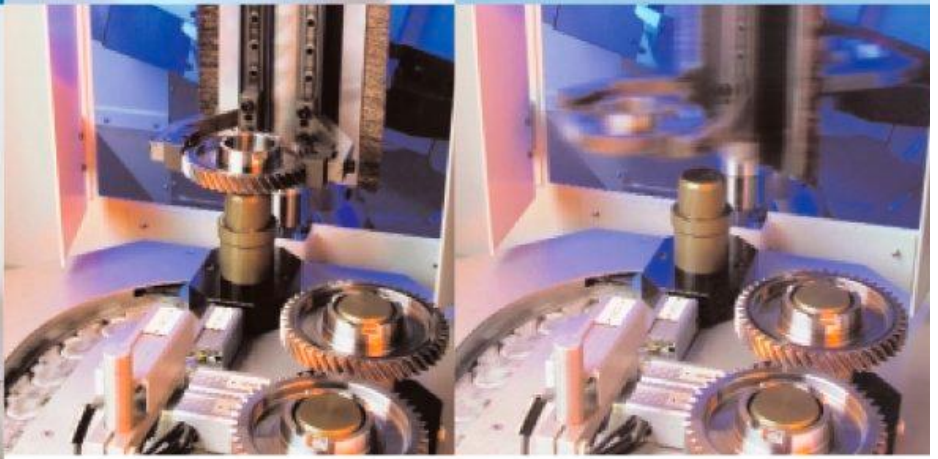
Shaving head in cutter changing position:

- fast change of shaving cutter,
- easy accessibility.



The **Genesis 130SV** is a compact, yet powerful and highly productive shaving machine.





Genesis cam-driven double-gripper loader reduces load/unload time.



Power Shaving™.

As an option, the 130SV can be equipped for POWER SHAVING™, a proprietary Gleason process proven in the successful ZS series of Gleason-Hurth shaving machines. This process is designed to greatly reduce the time typically required to shave the gears.

With POWER SHAVING™, both the work spindle and shaving cutter are driven, such that the workpiece is “auto-meshed” to the continuously rotating cutter on-the-fly. In addition, the shaving cutter continuously applies a torque on the workpiece during the shaving cycle, thus ensuring consistent results.

Faster floor-to-floor times.

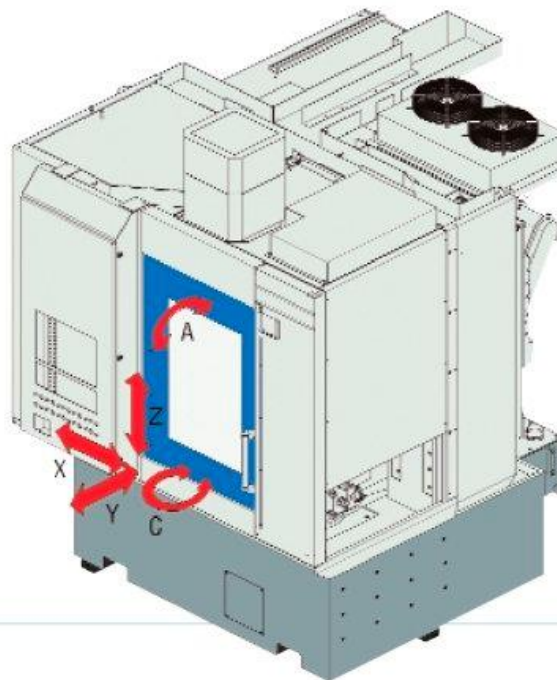
Significant advances in machine and cutting tool performance have combined to reduce the time spent shaving a gear. As a result, the non-productive time required for the load operation can become an increasingly large portion of overall floor-to-floor times.

That’s why the **Genesis 130SV** machine is equipped with an innovative new mechanical cam-driven double-gripper loader fully integrated into the machine. The **Genesis** double-gripper loader reduces the load/unload sequence to a minimum.

The machine can be integrated into all current linked systems.

Before the workpiece and the shaving cutter are meshed, the workpiece is indexed.

The indexing equipment is mounted on the shaving head and no setting is required. The position of the indexing equipment is automatically set by the CNC control using the relevant workpiece data.



5-axis standard design featuring direct drives and shorter travels, helps reduce cycle times. (Additional axis for tool, drive and tailstock possible as an option.)



Combined shaving and chamfering process using integrated chamfering and deburring unit.

NC-controlled chamfering and deburring on the Genesis 130SVC.

An optional integrated chamfering and deburring station is available for the shaving machine to create a combined machine in the tradition of the well-known and successful ZSE series. The workpieces are subjected to generating deburring before shaving takes place. Since the processes run in parallel, the floor-to-floor time of the system as a whole is determined by the shaving process and is not prolonged by chamfering and deburring.

The principle of chamfering and deburring is based on the use of a rotary deburring tool, which generates a chamfer on the tooth face edge by shaping and removes the protruding burrs on the face side of the gearing with the secondary deburring tools.

The machine concept means that no manual settings are necessary for retooling. Different outside diameters or workpiece widths are taken into account by the NC control.

Access for tool changes is optimized to ensure the shortest possible changeover times.

A double-gripper gantry loader is used as standard for transferring workpieces between shaving and deburring stations. As a result, connection to a variety of customers' automation concepts is possible.



Genesis 130SVC with chamfering and deburring station.

Chamfering and deburring tool.



Availability of the latest Siemens controls and Gleason's Windows® based front end makes it simple and efficient to operate.

Powerful, user-friendly controls.

Genesis 130SV is available with the latest SIEMENS CNC control system to meet customer preference anywhere in the world.

In addition, Gleason provides new operating software and network capabilities to allow easy integration into any modern production environment:

- Equipped with Gleason Spheric™ Shaving technology software to help make setup and operation control easy and intuitive by running in a true Windows® environment.
- Fully network-ready to support remote diagnostics. This allows quick, on-line access to Gleason engineers, or the customer's own off-site personnel for software upgrades and technical support.

Designed for serviceability.

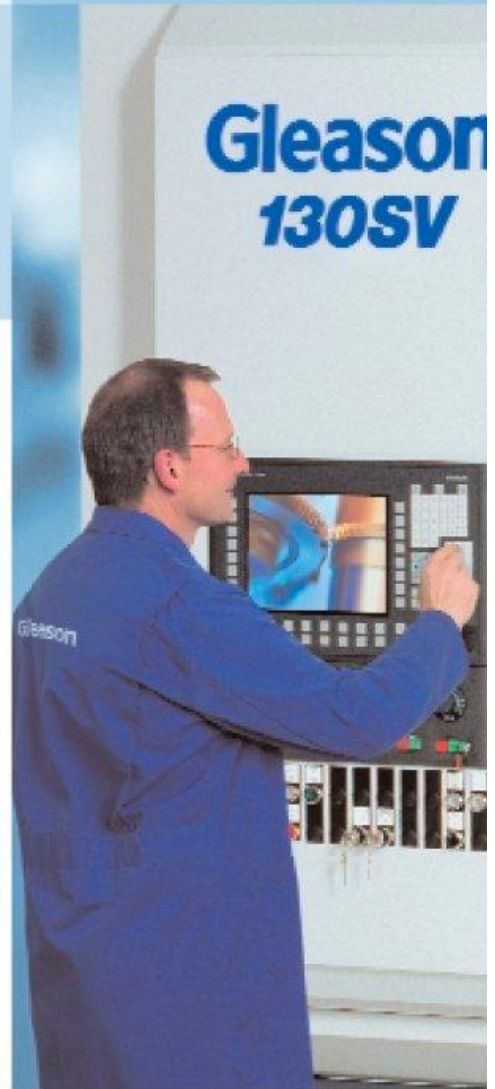
Servicing and maintaining hydraulics, lubrication, coolant and electrical services has been made easier and more efficient on the Genesis 130SV. By locating all of the service components in one modular sub-assembly, operations and maintenance personnel can more quickly and effectively locate and react to any maintenance issue.

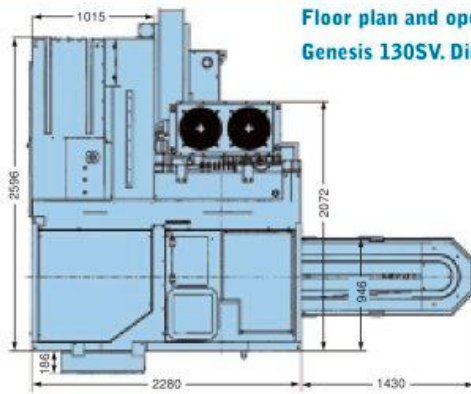
Fast, simple installation and relocation.

Genesis common-platform construction offers several other advantages, including:

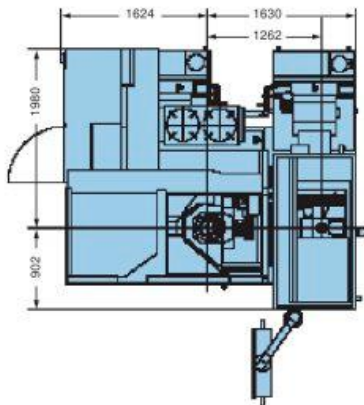
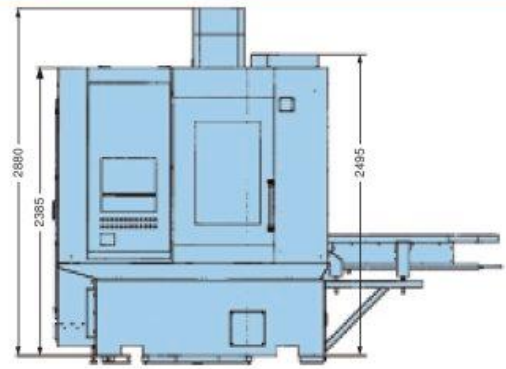
- The machine is readily transportable with no special lifting equipment, and can be installed on three mounting pads without the need for special foundations.
- Designed into the base are provisions to relocate the magnetic chip filter from either the side or rear of the machine (for the optional chamfering and deburring unit at the rear) to meet any cell/system arrangement, now and in the future.

By putting services in one easy-access module, maintenance is faster and less expensive to perform.

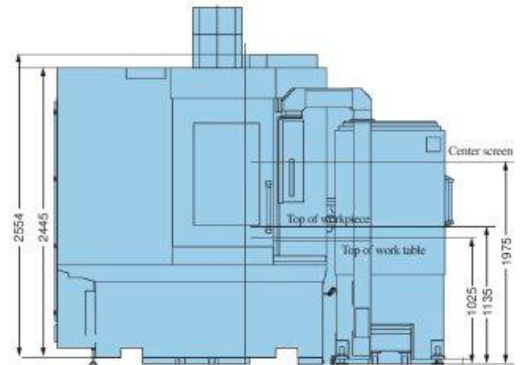




Floor plan and operator's view of the Genesis 130SV. Dimensions in mm.



Floor plan and operator's view of the Genesis 130SVC. Dimensions in mm.



Technical data

Workpiece data

Minimum/maximum outside diameter	10 - 140 (150 ^{***}) mm
Minimum/maximum module (plunge shaving)	1.0 - 3.0 mm
Minimum/maximum module (diagonal/parallel shaving)	1.0 - 4.0 (5.0 ^{***}) mm
Maximum tooth width, plunge shaving	40 mm
Maximum shaft length	350 mm*

Cutter data

Minimum/maximum outside diameter shaving cutter	200 - 250 mm
Bore diameter shaving cutter	63.5 or 100 mm
Maximum shaving cutter width	50.8 mm
Minimum/maximum outside diameter deburring tool**	200 - 205 mm
Bore diameter deburring tool**	40 mm
Secondary deburring discs (diameter)**	200 mm

Speeds

Maximum shaving tool spindle speed**	600 rpm
Maximum work spindle speed shaving	2,800 rpm
Maximum work spindle speed deburring**	2,000 rpm

Weight

Machine weight (shaving machine)	9,000 kg
Machine weight (including chamfering and deburring unit)	11,000 kg

Dimensions

Dimensions shaving machine (approx.)	2,600 mm x 2,500 mm
Dimensions (including chamfering and deburring unit) approx.	3,000 mm x 3,300 mm

Module value is for guidance only.

Actual machine limitation depend is subject to gear parameters, machinability of material and metal removal rates.

* longer shafts on request. ** option. *** on request.

The information and specifications in this publication are subject to change without notice. GENESIS™ is a registered trademark of The Gleason Works.

Tooling and Workholding.

Gleason is the world's leading source for advanced new tooling and Quick Change workholding systems to meet the latest requirements for accuracy, speed, and tool life. Only Gleason provides the complete range of gear cutting and finishing tools for cylindrical and bevel gears, including hobs, milling cutters, shaper cutters, deburring tools, shaving cutters, honing tools, bevel blades and heads, plated diamond and CBN grinding wheels, diamond dressing gears and diamond dressing rolls.



The Complete System.

At every stage of the gear production process, Gleason offers advanced new technology that takes significant production time and cost out of the operation. For the production of spur and helical gears, for example, Gleason offers a full range of vertical and horizontal hobbing machines, gear shapers (electronic and mechanical guide), shaving and honing machines, and advanced threaded wheel and profile grinding machines.

Gleason's ability to manufacture and completely inspect all types of gears is unmatched.



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