Cutting Tools for Cylindrical Gears
Hobs.

Gleason hobs are designed to significantly improve the productivity of the pre-finishing and finishing of gears in the green, pre-hardened state. Gleason’s use of premium high speed steels, advanced new carbide materials and the latest thin hard-film coatings all combine to help deliver significant reductions in the machining cost per part.

In addition, Gleason offers a complete range of hobs to improve hobbing efficiency in virtually any application – wet or completely dry, very large sizes to fine pitch, rough cutting or highly accurate finishing.

Range*

✔ Opti-Gash® Hobs

These hobs are designed with a small diameter and high number of gashes to increase output with higher feeds and speeds and longer up time between sharpenings. The increase in gashes produces a higher accuracy profile.

✔ Opti-Cut® Tools

Opti-Cut® Hobs, Gashers and Shaper Cutters have replaceable tungsten carbide inserts for high speed machining of coarse pitch gears with excellent tool life. Edge preparation and coating technology optimizes performance. Manufacturing cost per part can be reduced by up to 60% over conventional HSS tools.

✔ E-Z Cut Roughing Hobs

The objective of the E-Z Cut hob is the swift removal of metal prior to a finishing operation for gears module 6.35 (DP 4) or coarser. This design adds additional specialized flutes to provide additional cutting edges at the upper third of the depth where two thirds of the metal removal takes place. Feed rates are increased 43 to 185%.

✔ PDQ Hobs 3-4-week delivery of any hob of your choice.

PDQ now means there are virtually no limits to the hob sizes, materials and designs you can specify from Gleason and still get delivery in three to four weeks.

✔ Hob Data:

– Module .3 to 40 (DP 80 to .6)
– Outside Diameter 12 to 430 mm
– High Speed Steel or Carbide.
– Coatings of TiN, TiCN, TiAlN, and AlCrN.

Form-Relieved Milling Cutters.

Cutters range from standard convex and concave radius designs, to the most complex impeller rotor form or band saw cutter. The milling cutters can be made from any high speed steel; with ground or unground forms; straight, helical, or angular flutes; radial, positive or negative rake tooth face; gang sections butted together or interlocked; staggered or intermittent cutting teeth; radial, axial and undercut clearances.

Shaper Cutters.

For the pre-finishing and finishing of non-hardened internal gears or gears next to shoulders, and for special profiles, shaping is often the preferred process. Gleason offers its customers a complete range of highly productive and cost-effective shaper cutters – all produced with maximum precision and consistent high quality on new state-of-the-art production equipment.

This is essential, since the quality of the shaper cutter, and variations in pitch and concentricity in particular, are ultimately reflected in the machined gear.

Range*

✔ Disk-type, deep counterbore-type and shank-type shaper cutters with grinding of tooth flanks in accordance with Gleason’s high-precision Isoform® process. Iso-form tools have a consistent filet root radius from new to end of life which can offer up to a 25% longer tool life.

✔ Wafer® and Wafer® II disposable shaper cutters eliminate sharpening, sharpening costs, re-coating costs, and sharpening errors. In addition these tools are made to the same size so no machine adjustments are required with cutter changes. They also allow for a reduced tool inventory.

✔ Designed specifically to customer requirements or to a standard

✔ A large variety of high-performance PM HSS materials and coatings are available.

Shaper cutter data:

✔ Module range 0.5 to 17 (DP 48 to 1.5).
✔ Outside diameter 12 to 310 mm.
✔ Helix angle 0 to 50°.
Deburring Tools.
Rotary deburring is a combined forming and metal-cutting process for chamfering and deburring of gears. The method is suitable for large-scale and serial production and is characterized by extremely long tool life and thus a high degree of economy.

The type of chamfer desired by the customer (size, shape and angle) is defined by the tool, giving the latter key significance in the rotary deburring process.

Range*:
- ✔ Module range 0.8 to 6 mm.
- ✔ For wet and dry machining.
- ✔ Extremely long tool life and high efficiency.
- ✔ Chamfer shapes and sizes flexible selectable.
- ✔ Integrated burnishing feature.
- ✔ Patented adjustable burnishing wheel to adapt lead corrections of the helix angle to workpiece.
- ✔ Resharpening services.

Honing and Dressing Tools.
Gleason is a leading supplier of honing technologies from a single source. Our customers benefit from our many years of experience in design and manufacture of honing wheels and the associated dressing tools. Tools are designed either in respect of the patented Spheric® Honing process or for conventional strategies.

Range of honing tools*:
- ✔ External and internal honing wheels.
- ✔ Compound or ceramic base material.
- ✔ Opti-Form® pre-dressed honing wheels reduce initial dressing time by 50%.
- ✔ Module range 0.8 to 6 mm.
- ✔ Patented outer contour for quick honing wheel change

Range of dressing tools*:
- ✔ Module range 0.8 to 6 mm.
- ✔ Diamond grit sizes D91, D126, D151 and D181.
- ✔ Reconditioning services.

Shaving Cutters.
Soft shaving of gears is still one of the most economical and reliable fine finishing method for gears these days. About 60 to 70% of all gears are shaved worldwide. Gleason has decades of experience in design and manufacturing of high quality shaving cutters.

Range*:
- ✔ For external and internal gears.
- ✔ For all shaving methods.
- ✔ Module range 0.5 to 18 mm.
- ✔ Cutter width up to 50.8 mm.
- ✔ Opti-Edge® shaving cutters offer a significantly higher tool life performance.
- ✔ "PDQ“ Express-delivery within three weeks.
- ✔ Tooth flank grinding on Gleason-Hurth SRS machines.
- ✔ Resharpening services and shaving trials.

Threaded Wheel Grinding and Dressing Tools.
Gleason offers the whole range of grinding wheels and dressing tool systems like universal contour dressing tools, flexible flank dressing tools and workpiece specific tools. Each system offers different advantages depending on the case of application.

Range*:
- ✔ Grinding wheels module range 0.8 to 5 mm.
- ✔ Diamond dressing disc systems.
- ✔ TWG Master dressing gear system.

* Other designs available on request.
Plated Diamond and CBN Grinding Wheels.
Gleason is one of the world’s leading sources for plated CBN profile grinding wheels used in the hard finishing and grinding of cylindrical (and bevel) gears and other profiles.

Gleason plated wheels are made to the most precise quality standards.

They feature a hardened steel body with ground mounting surfaces and precision ground profiles plated with a single layer of CBN or diamond abrasive.

More Gleason Cylindrical Gear Cutting Tools Solutions.

SRS grinding system: concentrated expertise for regrinding
The Gleason-Hurth SRS grinder is more than just another machine for the precision regrinding of shaving cutters. It is the most widely used grinder in the world for these applications, and with good reasons. Its Windows-based technology software provides the user with concentrated process expertise, allowing all types of shaving cutter modifications to be generated quickly and simply.

Features include graphical support when generating complex profiles and a plausibility check for data entries.

SRS highlights and Customer benefits
✔ 9 CNC controlled axes.
✔ On-board inspection and outside diameter grinding as an option.
✔ Hydrostatic guide ways for extremely long lasting accuracy.
✔ Easy to operate technology software.

Cutting Tool Resharpening/Recoating/Reconditioning
Gleason offers its customers programs to return any and all existing gear cutting and finishing tools to like-new condition and performance. Gleason’s reconditioning centers have the capability to sharpen any straight or spiral fluted cutting tool, including those ranging from the smallest fine pitch hob to the largest hob manufactured today. For re-coating, Gleason takes tool preparation and processing to a whole new level, utilizing automated cleaning systems and highly productive new coating units to apply today’s most advanced coatings.

Finally, Gleason GMS Analytical Gear Inspection Systems deliver the highest accuracy and flexibility for complete cylindrical and bevel gear tool inspection. These systems are among the fastest and most versatile of their kind, helping to insure that tools are reconditioned/resharpened to the same high quality expected from new tools.

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The information and specifications in this publication are subject to change without notice.

Gleason

Gleason Corporation
1000 University Avenue
P.O. Box 22970
Rochester, NY 14692-2970, USA
Tel. +1-585-473-1000
Fax +1-585-461-4348
e-mail: sales@gleason.com

Gleason Cutting Tools Corporation
1351 Windsor Road
Loves Park, IL, 61111, USA
Tel. +1-815-877-8900
Fax +1-815-877-0264
e-mail: gctc@gleason.com

The Gleason Works
1000 University Avenue
P.O. Box 22970
Rochester, NY 14692-2970, USA
Tel. +1-585-473-1000
Fax +1-585-461-4348
e-mail: sales@gleason.com

Gleason Works (India)
PRIVATE LIMITED
#37 Doddenakundi Industrial Area
Whitefield Road, Mahadevapura
Bangalore 560 048, India
Tel. +91-80-524-376
Fax +91-80-524-377
e-mail: bangalore.sales@gleason.in

Gleason • Hurth
Maschinen und Werkzeuge GmbH
Moosacher Strasse 42-46
D-80809 München, Germany
Tel. +49-(0)89-3 54 01-0
Fax +49-(0)89-3 54 01-463
e-mail: hurth@gleason.com

Gleason Cutting Tools (Suzhou)
A Division of Gleason Gear Technology Co. Ltd.
Block BB, Modern Industrial Square
No. 333 Xingpu Road, Suzhou Industrial Park,
Jiangsu 215126, P.R. China
Tel. +86 (512) 6732 5833
Fax +86 (512) 6732 5822
e-mail: gcts-sales@gleason.com

www.gleason.com • sales@gleason.com
Visit www.gleason.com for Worldwide Sales Locations and Additional Information.
Printed in Germany.