

S 650 GW - S 1000 GW - S 3000 GW

Worm and Rotor Grinding Machines



# S 650/1000/3000 GW

## Application

The S-GW series has been especially designed for the efficient and high-precision grinding of cylindrical and tapered worms and segments of worms in simple or barrier-type design, with constant or variable lead and a wide range of profiles.

The S-GW series is also perfectly suited to the manufacturing of rotors and other screw-type workpieces.

## Processes

The machine technology and equipment (cooling system, filtration system and motors) allow the use of the creep feed method by high-performance grinding from the solid and the machining of hardened workpieces.

Use of all types of grinding wheels currently available on the market for a wide range of applications.



S 3000 GW

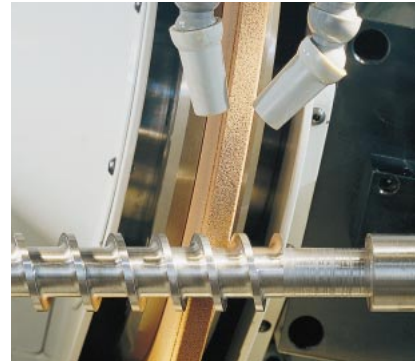
## Characteristic features

- Strongly ribbed machine bed with internal damping.
  - Work table with slanted surface for better drainage of coolant fluid and to counteract the radial forces of the grinding wheel.
  - Preloaded precision anti-friction guides for the axial and radial slides to reduce the friction coefficient and stick-slip.
  - Directly driven, liquid-cooled torque motor for the work spindle axis with patented configuration of the poles, supported by hybrid ball bearings (ceramic balls) for extremely high run-out accuracy; high-accuracy angular encoder to control indexing and rotation.
  - The grinding head moves along the workpiece axially (Z) and radially (X). This specific design allows for the construction of a very compact machine.
  - Integrated profiling unit mounted on the work spindle enclosure including special software for the flexible generation of the required profile.
- The CNC-controlled profiling process is generated by the interpolation of the axes Z and X.
- Choice of profiling frequency according to the tolerances and surface quality required.
- Siemens 840 D with easy and flexible operator guidance for simple geometric programming and entering of machining parameters.
  - Interface for the transfer of machining data.
  - Mobile operator panel for convenient operation whilst keeping the work area under observation.

## ■ Kinematics:

A: Grinding spindle swivel  
B: Grinding spindle rotation  
C: Work spindle rotation  
X: Grinding spindle radial movement  
Z: Grinding spindle axial movement  
Z,X Profiling of grinding wheel by interpolation of both axes.

- No limitation to lead angle to be ground.
- High-resolution Heidenhain direct measuring systems for unmatched repeatability of axis positioning.
- Constant surface speed independent of tool diameter which changes after each dressing cycle.
- Linear movements are actuated by high-precision ball screws driven by digital AC servo motors.
- Electrostatic oil mist filtering unit.
- Coolant conditioning system with dual filter system.



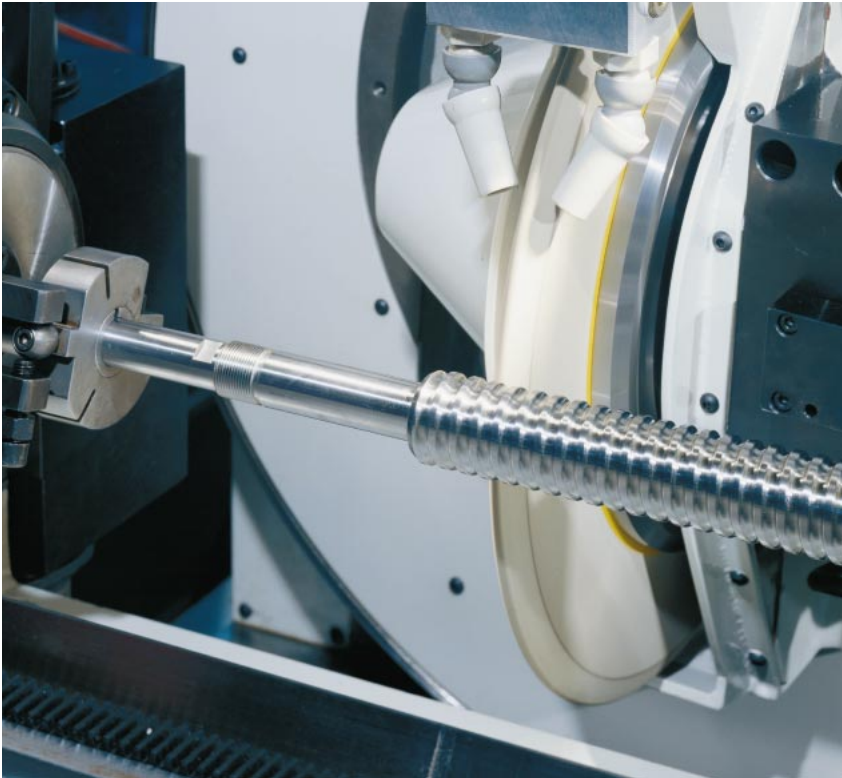
S 650 GW grinding a screw for plastic

## Options

- Steady rests.
- Automatic balancing unit for grinding wheels.
- Measuring unit with touch probe and software for checking profile, lead, pitch and tooth thickness.



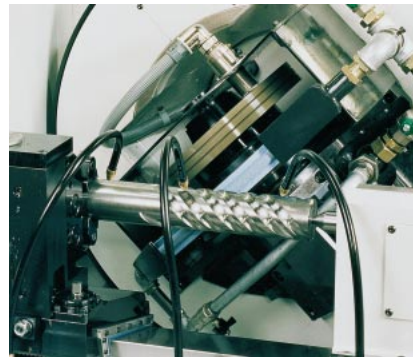
# S 650/1000/3000 GW



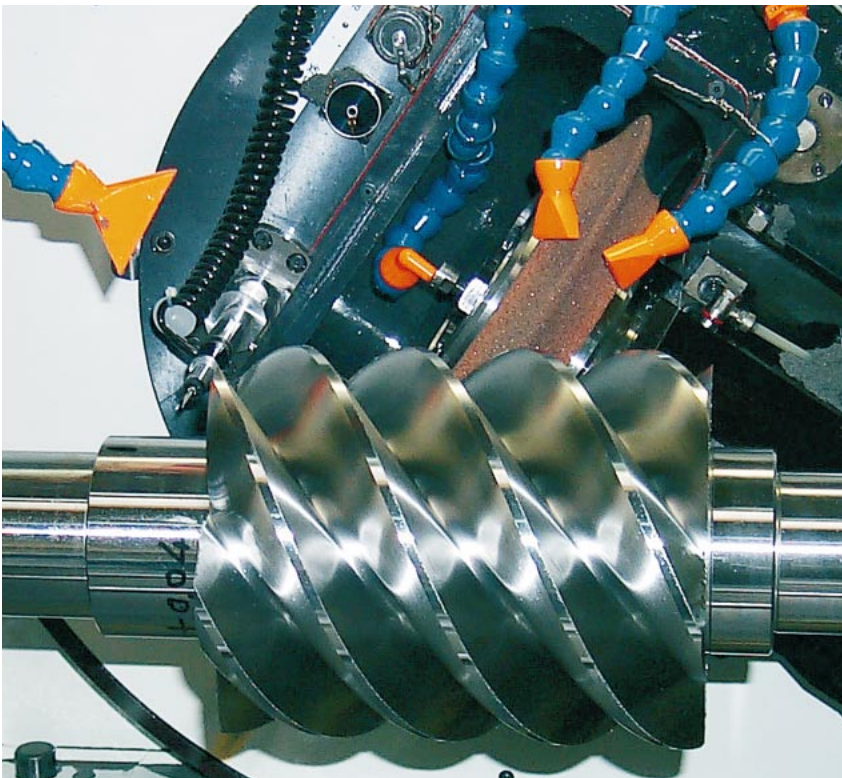
S 3000 GW grinding a ball screw



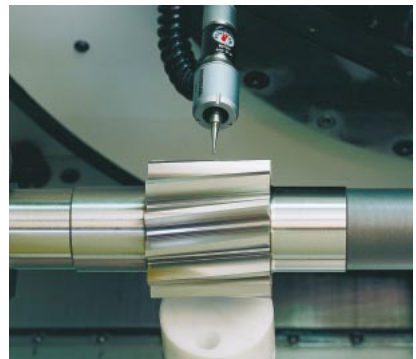
Siemens 840 D control



S 1000 GW grinding a pump screw with a corundum grinding wheel



S 650 GW machining an air compressor rotor



Machine-integrated stock division unit with optional integrated measuring probe

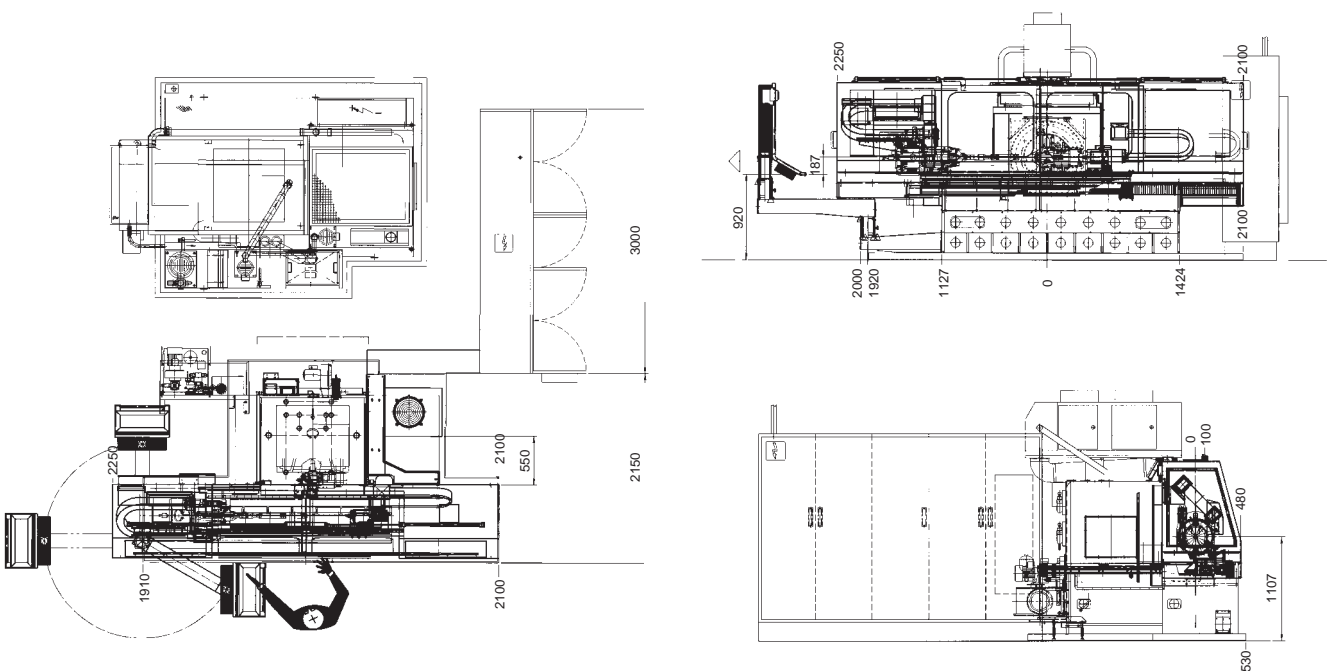


Machine-integrated dressing unit

# Technical data

	S 650 GW	S 1000 GW	S 3000 GW	
Min. workpiece-Ø with grinding wheel-Ø 450 mm	10	10	10	mm
Max. workpiece-Ø with grinding wheel-Ø 330 mm	250	250	250	mm
Max. swing dia.	375	375	375	mm
Helix angle range	+/- 90	+/- 90	+/- 90	degrees
Max. length of workpiece	1,000	1,350	3,600	mm
Max. length to be ground	600	1,000	2,710	mm
Grinding wheel dia.	330 - 450	330 - 450	330 - 450	mm
Max. grinding wheel width	60	60	75	mm
Grinding spindle speed	0 - 6,000	0 - 6,000	0 - 6,000	rpm
Workpiece spindle speed	0 - 300	0 - 300	0 - 300	rpm
Total connected load (excl. coolant and filtration systems)	50	50	30	kVA
Machine dimensions, L x W x H (excl. coolant and filtration systems)	3.34 x 3.10 x 2.20	4.35 x 3.10 x 2.20	7.10 x 4.70 x 2.67	m
Machine weight, approx.	13,000	13,000	13,500	kg
Machine weight, approx. (incl. coolant and filtration system)	14,500	14,500	15,000	kg

Technical data is subject to change



S 1000 GW

# System technology from one source



Cylindrical gear hobbing  
Bevel gear cutting  
Profile grinding  
Continuous generating grinding  
Shave grinding  
Shaving cutter grinding  
Chamfering and deburring

HSS and carbide hobs  
HSS and carbide shaper cutters  
Shaving cutters  
Grinding wheels and grinding worms  
Diamond dressing tools  
Master gears  
Chamfering and deburring tools  
Bevel gear cutting tools

Regrinding of hobs, shaper cutters  
and shaving cutters

Coating of cutting tools, dies, stamps,  
mechanical parts, punching dies/tools

Replating of grinding wheels and  
grinding worms

Grinding of compressor rotors, rotors  
for hydraulic pumps, gears of special  
design, worms and cams



The driving force  
in gear technology

Samputensili S.p.A.  
Via Trivirato, 13  
40132 Bologna  
Italy  
Tel.: +39 (051) 4132 311  
Fax: +39 (051) 434 149  
info@samputensili.com

Hurth Modul GmbH  
Marienberger Str. 17  
09125 Chemnitz  
Germany  
Tel.: +49 (0371) 576 0  
Fax: +49 (0371) 576 401  
info@hurth-modul.de

Stabilimento Zola  
Via del Greto, 16  
40069 Zola Predosa (BO)  
Italy  
Tel.: +39 (051) 4132 311  
Fax: +39 (051) 75 06 82  
info@samputensili.com

Stabilimento Ortona  
S.S. Marrucina, Loc. Alboreto Z.I.  
66026 Ortona (CH)  
Italy  
Tel.: +39 (085) 90 51 810  
Fax: +39 (085) 90 51 822  
info@samputensili.com

Stabilimento Vimercate  
Via Po, 7  
20059 Vimercate (MI)  
Italy  
Tel.: +39 (039) 60 82 093  
Fax: +39 (039) 60 82 422  
info@samputensili.com

Stabilimento Torino  
Str. Fantasia, 47  
10040 Leini (TO)  
Italy  
Tel.: +39 (011) 99 80 316  
Fax: +39 (011) 99 73 060  
sutorino@iol.it

Samputensili France S.a.r.l.  
79-81 Rue de la Tour BP 62  
42000 Saint Etienne Cedex  
France  
Tel.: +33 (0477) 92 80 50  
Fax: +33 (0477) 93 72 03  
info@samputensili.fr

Samputensili Deutschland GmbH  
Limburgerstr. 28  
65520 Bad Camberg  
Germany  
Tel.: +49 (06434) 9413 0  
Fax: +49 (06434) 9413 11  
samputensili@samputensili.de

Samputensili UK Ltd.  
Rother Way  
Hellaby Industrial Estate, Hellaby  
Rotherham, S66 8QN, England  
Tel.: +44 (01709) 703707  
Fax: +44 (01709) 703232  
postbox@geartec.demon.co.uk

SU America Inc.  
5200 Prairie Stone Parkway, Suite 100  
Hoffman Estates, IL 60192  
USA  
Tel.: +1 (847) 649 1450  
Fax: +1 (847) 649 0112  
sales@suamerica.com

SU America Inc.  
Service Center  
Detroit, MI  
USA  
Tel.: +1 (847) 649 1450  
Fax: +1 (847) 649 0112  
sales@suamerica.com

Samputensili do Brasil Ltda.  
Rod. Dom Gabriel Paulino  
Bueno Couto Km 66,3 - C.P. 849  
CEP 13201 - 970 Jundiá, SP, Brazil  
Tel.: +55 (011) 4582 5199  
Fax: +55 (011) 4582 7921  
brasil@samputensili.com.br

Samputensili S.A.  
Caldas 220  
1427 Buenos Aires  
Argentina  
Tel.: +54 (0114) 855 61 45  
Fax: +54 (0114) 856 49 67  
coutil@infovia.com.ar

SU Korea Co. Ltd.  
4 MA - 319 Sihwa Industrial Complex  
703-12, Sung-Gok Dong An-San City  
Kyungki-Do, Rep. of Korea  
Tel.: +82 (031) 497 18 11  
Fax: +82 (031) 497 18 15  
su-korea@hanmail.net

Samputensili Japan Co. Ltd.  
Daiichi Ota Coop 102  
74 Terugaoka, Meito-Ku  
465-0042 Nagoya, Japan  
Tel.: +81 (052) 771 5077  
Fax: +81 (052) 771 5078  
su-nagoya02@ml.aimnet.ne.jp

Samputensili Japan Co. Ltd.  
280 Fushisawa, Nakai-Machi  
Ashigarakami-Gun  
Kanagawa 259-01 Odawara, Japan  
Tel.: +81 (465) 815066  
Fax: +81 (465) 812617  
su-nagoya02@ml.aimnet.ne.jp

Samputensili Beijing  
Room 1605, Jing Tai Tower,  
No. C24 Jian Guo Men Wai Avenue  
100022 Beijing, P.R. China  
Tel.: +86 (010) 6515 6349 - 6515 6350  
Fax: +86 (010) 6515 7150  
subj@163bj.com

