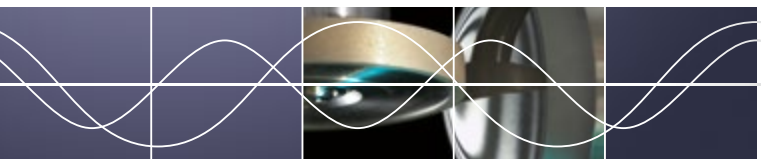
Precision Optics

Grinding

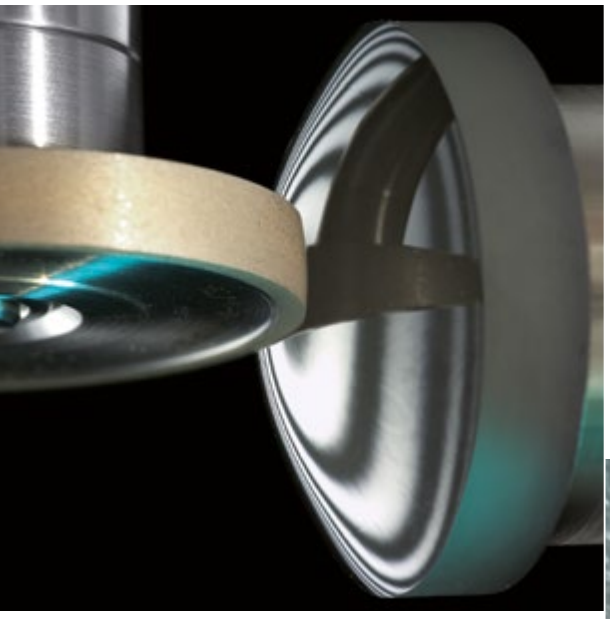
Spheroline® SLG 301

Perfect grinding of larger optics



SCHNEIDER

Fascination for Innovation



Introducing the Spheroline® SLG 301

Larger diameters optics made to very high specs – the processing center Spheroline® SLG 301 meets this fundamental requirement like no other machine of its class. Large optics up to a diameter of 480 mm are manufactured on this machine for use in lithography equipment and other demanding applications.

Key to the success of the SLG 301 is the kinematic concept of the machine consisting of the two parallel spindles for the tools and a workpiece spindle which can be positioned, swiveled and shifted to enable a wide variety of processing steps. In one process cycle you can combine rough grinding, fine grinding, centering, truncation, drilling and measuring. And the tools are changed automatically in the machine. The unique combination of these features ensures a high flexibility which enables production of simple to complex spherical optics. High utilization of the machine is guaranteed.

Solid foundation
The machine has a cast iron base for the kinematics with up to 5 axes and 3 spindles. The modern CNC controller system drives the AC servo drives, enabling high precision and excellent dynamics of the lens processing.

The 3D processing feature of the SLG 301 enables optimal use of the grinding ring tools no matter how the uncut and finished radii vary. This results in a prolonged tool life time and reduced running costs.

Advanced spindle technology
A special advantage of the SLG 301 is the double-spindle system in combination with the automated tool changer. Two independent tool spindles facilitate flexibility and precision in one unit. While one tool spindle is supplied with various tools from the automated tool changer, the second tool spindle works with a stationary mounted tool which guarantees perfect surface quality, form accuracy, and process stability.

Automated tooling
To run complex multi-step processing jobs with ease, the automated tool changer using a HSK clamping system handles up to four tools. Without operator intervention, the complex grinding tasks consisting of several surface and edge processing steps are performed consistently. Auxiliary times are also reduced. The result: Excellent geometrical accuracy with very competitive cycle times.

In-process metrology
The consistent high performance and tight process control is accomplished with a comprehensive integrated metrology package. The process control compensates for tool wear and process drift.

The **CT Control** automatically checks the center thickness of the lens and makes adjustments.

The **Tool Control** recognizes the grinding tools and reduces significantly the set-up and correction times.

The **Feed Control** and its first-touch technology reduces the air cutting time during the tool approach to a minimum-saving valuable process time. The Feed Control also optimizes the process during grinding by adjusting the feed rate of the tool with respect to the cutting conditions.

The **Geo Control** is a CNC-controlled fine adjustment of the mutual positions of the workpiece and tool spindles to optimize the spherical quality and form error.

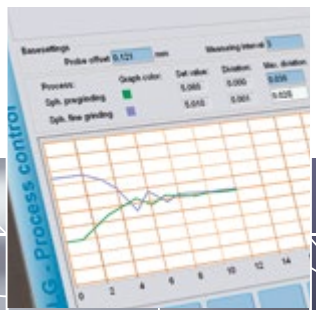
Data communication
The system interfaces to an Ethernet network connection and to the **SCHNEIDER Optical Technology (SOT)** software enabeling a smooth and effective data exchange for setup and operation. The process steps are monitored by an intelligent diagnosis and alarm system supplemented by a remote diagnostics unit to guarantee maximum utilization time. All polishing parameters are uploaded and stored on an internal data memory.

A graphical user-machine dialog allows an easy and fast completion of setup and communication tasks with the SLG 301.

The process steps are monitored by an intelligent diagnosis and alarm system supplemented by a remote diagnostics unit to guarantee maximum utilization time.

The seamless link of the SLG 301 with external measuring equipment assures a smooth and flawless processes flow. The corrections are networked into the machine.

The SLG 301 makes you better, faster and more competitive and helps you win orders. The processing capabilities and the widely automated operation of the SLG 301 make this machine a perfect mate for the Spheroline® SLP 301 polisher.



The process control allows the monitoring of the tool wear and its fully automated compensation.

Benefits

- Manufacturing of spheres with extended capabilities for processing of flats, prisms, and special geometries
- High quality and form accuracy
- Automated multiple-step processing
- Computer-assisted setup
- Integrated process control for high process stability
- Graphical user interface
- Intelligent analysis system with remote diagnostics
- Modern network connection
- Automated central lubrication

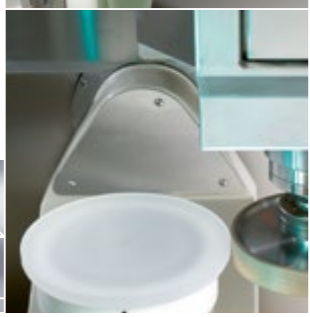
Rough and fine grinding of spheres using the double spindle technology.

The automated tool changer allows an intelligent tool management including combinations of standard and form tools in one processing cycle.

The CT Control guarantees a fast and precise setup as a prerequisite for the integrated process control.

Besides spheres, also prisms, flats and other special geometries can be processed with ease.

The list of processing options includes edging, centering, drilling, truncating and scooping.

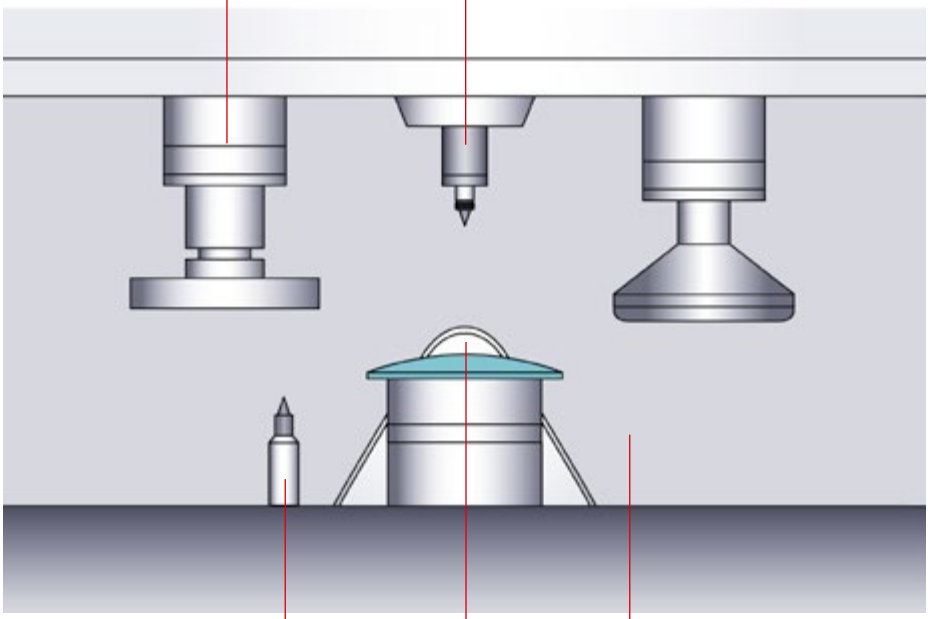


Edge processing on board.

Work space features of the SLG 301

Feed Control
- *First-touch technology ensures minimal air cutting passes*
- *Load dependent feed-rate control*

- *CNC-controlled measurements ensure precise center thickness control*
- *Reduction of setup times*
- *Process control*



Tool Control
- *CNC-controlled recognition of the grinding tools*
- *Significant reduction of the setup time*
- *Verification of tool settings*

Kinematics
- *Manufactured on a cast-iron bed, the double-spindle technology enables high surface quality*

Geo Control
- *CNC controlled axis position*
- *Optimization of sphericity and surface quality*

technical data		
working range working range	max. ø radius	480 mm 30 mm – flat
number of axes		4 (5) + 1 (X, Z, B, C, (Y), Q)
feed rate	X-axis Z-axis	0.01 – 15000 mm/min 0.01 – 7500 mm/min
positioning accuracy, repeat accuracy	X-, Z-axis	+/– 0.001 mm
feed rate	B-axis	0.01 – 2160 °/min
positioning accuracy, repeat accuracy	B-axis	+/– 4"
tool spindle connection		40 x 80 HD, HSK-A 50 (TC)
speed range		1000 – 7000 min^{-1}
workpiece spindle connection flange	ø	120 mm
speed range workpiece spindle		25 – 1400 min^{-1}
power consumption	max.	8 kVA avg.
air requirement	min.	6 bar (87 psi)
vacuum	min.	0.6 bar (8.7 psi)
weight machine		approx. 4500 kg (9921 lb.)
dimensions without control panel (width x depth x height)		approx. 2170 x 1990 x 2230 mm (85 x 78 x 88 inches)

All data subject to change without notice. Please verify details with SCHNEIDER.

11.2019

SCHNEIDER GmbH & Co. KG
Biegenstrasse 8–12
35112 Fronhausen
Germany
Phone: +49 (64 26) 96 96-0
Fax: +49 (64 26) 96 96-100
www.schneider-om.com
info@schneider-om.com

SCHNEIDER Optical Machines Inc.
6644 All Stars Avenue, Suite 100
Frisco, TX 75033, USA
Phone: +1 (972) 247-4000
Fax: +1 (972) 247-4060
info-us@schneider-om.com

SCHNEIDER Optical Machines
do Brasil Ltda.
Avenida Eid Mansur, 621
Parque São George
CEP: 06708-070, Cotia – SP
Brazil
Phone/Fax: +55 (11) 4777-1717
info-brasil@schneider-om.com

SCHNEIDER Optical Machines Ltd.
Room 202, 2/F, APEC Plaza
49 Hoi Yuen Road
Kwun Tong, Hong Kong
Phone: +852 3563-5238
Fax: +852 3563-5240
info-asia@schneider-om.com

SCHNEIDER Optical Machines
(Shanghai) Co., Ltd.
Room 202, 2nd Floor, Building 16
481 Guiping Road
200233 Shanghai – Xuhui District
Phone: +86 (21) 61 48 00 61-120
Fax: +86 (21) 61 48 00 65
info-cn@schneider-om.com

SCHNEIDER Optical Machines
Asia-Pacific Co., Ltd.
Piya Place Lungsuan Building
29/1, Tower B, 9th Floor, Unit 9B
Soi Lungsuan Ploenchit Road
Lumpini, Pathumwan
Bangkok 10330, Thailand
Phone: +66 (0) 2014-4690-2
Fax: +66 (0)2014-4693
info-asia@schneider-om.com

For a complete list of SCHNEIDER agencies, please visit www.schneider-om.com

SCHNEIDER

Fascination for Innovation